Issued November, 1970

SOIL SURVEY

Androscoggin and Sagadahoc Counties, Maine

UNITED STATES DEPARTMENT OF AGRICULTURE
Soil Conservation Service
In cooperation with
UNIVERSITY OF MAINE AGRICULTURAL EXPERIMENT STATION

Major fieldwork for this soil survey was done in the period 1956–63. Soil names and descriptions were approved in 1966. Unless otherwise indicated, statements in the publication refer to conditions in the county in 1966. This survey was made cooperatively by the Soil Conservation Service and the University of Maine Agricultural Experiment Station; it is part of the technical assistance furnished to the Androscoggin Valley Soil and Water Conservation District.

HOW TO USE THIS SOIL SURVEY

THIS SOIL SURVEY contains information that can be applied in managing farms and woodlands; in selecting sites for roads, ponds, buildings, and other structures; and in appraising the suitability of tracts of land for agriculture, industry, and recreation.

Locating Soils

All of the soils of Androscoggin County and Sagadahoc County are shown on the detailed map at the back of this survey. This map consists of many sheets that are made from aerial photographs. Each sheet is numbered to correspond with a number shown on the Index to Map Sheets.

On each sheet of the detailed map, soil areas are outlined and are identified by symbol. All areas marked with the same symbol are the same kind of soil. The soil symbol is inside the area if there is enough room; otherwise, it is outside and a pointer shows where the symbol belongs.

Finding and Using Information

The "Guide to Mapping Units" can be used to find information in the survey. This guide lists all of the soils of the area in alphabetic order by map symbol. It shows the capability unit, the woodland group, and the wildlife group each soil is in and the pages where descriptions of the soils and the woodland groups can be found.

Individual colored maps showing the relative suitability or limitations of soils for many specific purposes other than cultivated crops and woodland can be developed by using the soil map and information in the text. Translucent material can be used as an overlay over the soil map and colored to show soils that have the same limitation or suitability. For example, soils that have a slight limitation for a given use can be colored green, those with a moderate limitation can be colored yellow, and those with a severe limitation can be colored red.

Farmers and those who work with farmers can learn about use and management of the soils from the soil descriptions and from the sections "Suitability of the Soils for Important Crops," "Use of the Soils for Woodland," and "Wildlife."

Foresters and others can refer to the section "Use of the Soils for Woodland," where the soils of the area are grouped according to their suitability for trees.

Game managers and sportsmen can find information of interest in the section "Wildlife."

Community planners and others concerned with suburban development can read about the soil properties that affect the choice of homesites, industrial sites, schools, and parks in the section "Use of the Soils in Community Development and Recreation."

Engineers and builders will find, under "Engineering Uses of the Soils," tables that give engineering descriptions of the soils in the area and that name soil features that affect engineering practices and structures.

Scientists and others can read about how the soils were formed and how they are classified in the section "Formation and Classification of the Soils."

Newcomers in Androscoggin County and Sagadahoc County may be especially interested in the section "General Soil Map," where broad patterns of soils are described. They may also be interested in the section "General Nature of the Area," which gives additional information about the counties.

Cover Picture

Farming area on Turner Ridge in the town of Turner, Androscoggin County. Paxton, Woodbridge, Charlton, and Sutton soils.

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SOIL SURVEY OF ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE

BY BRYCE W. McEWEN, SOIL CONSERVATION SERVICE

SOILS SURVEYED BY B. W. McEWEN, A. P. FAUST, R. B. WILLEY, O. L. LAVOIE,[1] AND BRUCE WORCESTER, SOIL CONSERVATION SERVICE; AND LEE BINGHAM, UNIVERSITY OF MAINE AGRICULTURAL EXPERIMENT STATION

UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE, IN COOPERATION WITH THE UNIVERSITY OF MAINE AGRICULTURAL EXPERIMENT STATION

ANDROSCOGGIN COUNTY AND SAGADAHOC COUNTY (fig. 1) extend from the foothills to the seacoast in southeastern Maine. Androscoggin County covers an area of 305,920 acres and has a population of about 86,000, of which 70 percent live in the cities of Lewiston and Auburn. Sagadahoc County has a land area of 164,480 acres and an inland water area of 29,440 acres. It has a population of about 22,000, of which about 50 percent live in the city of Bath. Two-thirds of the two-county area is woodland.

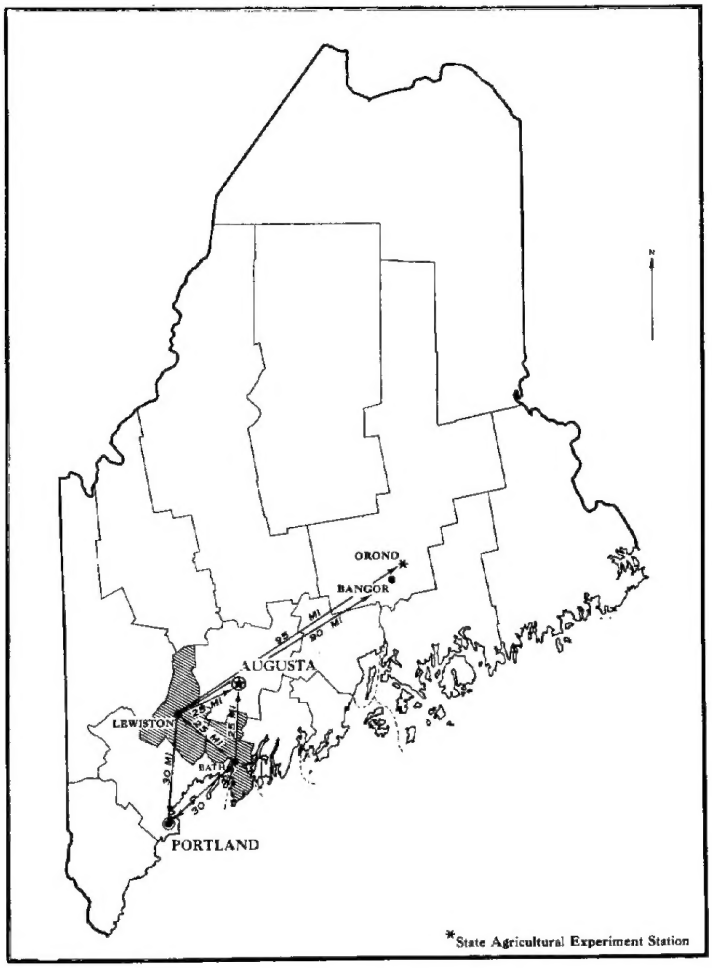

Figure 1.—Location of Androscoggin and Sagadahoc Counties in Maine.

Merrymeeting Bay, near the center of Sagadahoc County, is the junction of the Androscoggin, Cathance, Abagadasset, and Muddy Rivers with the Kennebec River. The Androscoggin River flows from north to south through the center of Androscoggin County and then to Merrymeeting Bay. The Kennebec River flows southward through the center of Sagadahoc County to Merrymeeting Bay and from there to the sea.

The principal sources of employment in Androscoggin County are the many shoeshops, textile mills, dairy farms, apple orchards, woodland operations, and recreational enterprises. Shipbuilding, fishing, and recreational enterprises provide employment in Sagadahoc County. Among the recreation areas are public beaches, camping areas, camps for girls and boys, and Reid State Park. Merrymeeting Bay is a major duck-hunting area. There are also many summer homes around the lakes and ponds and along the seashore.

How This Survey Was Made

Soil scientists made this survey to learn what kinds of soils are in Androscoggin and Sagadahoc Counties, where they are located, and how they can be used. They went into the two-county area knowing they were likely to find many soils they had already seen, and perhaps some they had not. As they traveled over the area, they observed steepness, length, and shape of slopes; size and speed of streams; kinds of native plants or crops; and many facts about the soils. They dug or bored many holes to expose soil profiles. A profile is the sequence of natural layers, or horizons, in a soil; it extends from the surface down into the parent material that has not been changed much by leaching or by roots of plants.

[1] Deceased.

The soil scientists made comparisons among the profiles they studied, and they compared these profiles with those in counties nearby and in places more distant. They classified and named the soils according to nationwide, uniform procedures. To use this survey efficiently, it is necessary to know the kinds of groupings most used in a local soil classification.

Soils that have profiles almost alike make up a soil series. Except for different texture in the surface layer, the major horizons of all the soils of one series are similar in thickness, arrangement, and other important characteristics. Each soil series is named for a town or other geographic feature near the place where a soil of that series was first observed and mapped. Charlton and Paxton, for example, are the names of two soil series. All the soils in the United States having the same series name are essentially alike in those characteristics that affect their behavior in the natural, undisturbed landscape.

A soil series may be subdivided on the basis of texture of the surface layer, slope, stoniness, or other characteristic that affects use of the soil. Each such subdivision is called a soil phase and is given a name that indicates one or more features that affect management. For example, Charlton fine sandy loam, 0 to 8 percent slopes, is one of the six phases of the Charlton series mapped in this two-county area.

After a guide for classifying and naming the soils had been worked out, the soil scientists drew the boundaries of the individual soils on aerial photographs. These photographs show woodlands, buildings, field borders, trees, and other details that help in drawing boundaries accurately. The soil map in the back of this publication was prepared from the aerial photographs.

The areas shown on a soil map are called mapping units. On most maps detailed enough to be useful in planning management of farms and fields, a mapping unit is nearly equivalent to a phase. It is not exactly equivalent, because it is not practical to show on such a map all the small, scattered bits of soil of some other kind that have been seen within an area that is dominantly of a recognized soil phase.

In preparing some detailed maps, the soil scientists have a problem of delineating areas where different kinds of soils are so intricately mixed, or occur in such small individual tracts, that it is not practical to show them separately on the map. They show such a mixture of soils as one mapping unit and call it a soil complex. Ordinarily, a complex is named for the major kinds of soil in it, for example, Rock land-Hollis soil material, 0 to 15 percent slopes.

Another kind of mapping unit is the undifferentiated group, which consists of two or more soils that occur together without regularity in pattern or relative proportion. The individual tracts of the component soils could be shown separately on the map, but the differences are so slight that the separation is not important for the objectives of the survey. An example of an undifferentiated group is Peat and Muck.

Also, most surveys include areas in which the soil material is so rocky, so shallow, or so frequently worked by wind and water that it cannot be classified by soil series. These areas are shown on a soil map like other mapping units but are given descriptive names, such as Coastal beach or Dune land, and are called land types.

While a soil survey is in progress, samples of soils are taken, as needed, for laboratory measurements and for engineering tests. Laboratory data from the same kinds of soils in other places are assembled. Data on yields of crops under defined practices are assembled from farm records and from field or plot experiments on the same kinds of soils.

But only part of a soil survey is done when the soils have been named, described, and delineated on the map, and the laboratory data and yield data have been assembled. The mass of detailed information then needs to be organized in such a way as to be readily useful to different groups of readers, among them farmers, ranchers, managers of woodland, engineers, and homeowners. Grouping soils that are similar in suitability for each specified use is the method of organization commonly used in the soil survey. On the basis of the yield and practice tables and other data, the soil scientists set up trial groups. They test these groups by further study and by consultation with farmers, agronomists, engineers, and others, and then adjust the groups according to the results of their studies and consultation. Thus, the groups that are finally evolved reflect up-to-date knowledge of the soils and their behavior under present methods of use and management.

General Soil Map

The general soil map at the back of this publication shows, in color, the soil associations in Androscoggin County and Sagadahoc County. A soil association is a landscape that has a distinctive, proportional pattern of soils. It normally consists of one or more major soils and at least one minor soil, and it is named for the major soils. The soils in one association may occur in another, but in a different pattern.

A map showing soil associations is useful to people who want a general idea of the soils in an area, who want to compare different parts of an area, or who want to know the location of large tracts that are suitable for a certain kind of farming or other land use. Such a map is not suitable for planning the management of a farm or field, because the soils in any one association ordinarily differ in slope, depth, texture, drainage, and other characteristics that affect management.

The five associations in Androscoggin County and Sagadahoc County are described in this section. More detailed information about the individual soils in each association can be obtained by studying the detailed map and reading the section "Descriptions of the Soils."

1. *Charlton-Sutton-Paxton association*

Deep, medium-textured and moderately coarse textured, well drained and moderately well drained, nearly level to moderately steep soils, on hills and ridges

This association consists of 300- to 900-foot hills and ridges that have rounded tops and long slopes (fig. 2). At the ends of the long slopes are swamps and steep, stony draws. The pattern of natural drainage on the hills and ridges is poorly defined.

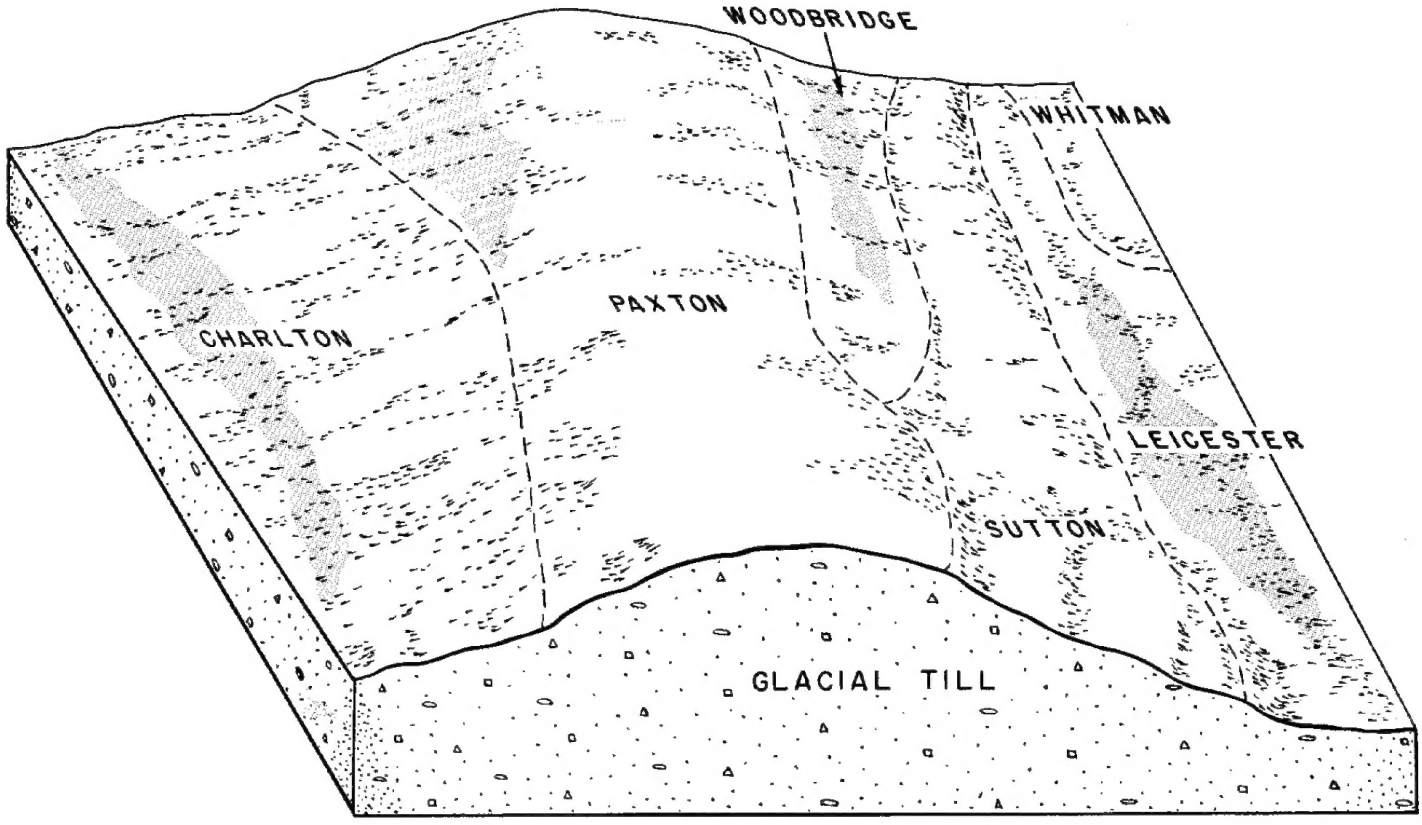

Figure 2.—**Parent material and position of the soils in association 1.**

About 101,000 acres of Androscoggin County is in association 1, and about 19,000 acres of Sagadahoc County. The total is about 25 percent of the two-county area. About 30 percent of the association consists of Charlton soils, about 25 percent of Sutton soils, about 25 percent of Paxton soils, and the remaining 20 percent of Woodbridge, Leicester, Whitman, and Hollis soils.

Charlton soils are on the sides of high ridges and on the tops of low ridges next to stream terraces. The moderately well drained Sutton soils commonly lack good surface drainage and are subject to seepage from the slopes above them. The well-drained Paxton soils are on the tops and upper slopes of the hills and ridges. Water moves through these Paxton soils less rapidly than through Charlton soils because they have a fragipan, but surface drainage is good.

About 75 percent of this association is woodland. Most of this is in the swamps and drainageways and on the tops of the hills and ridges. The woodland soils are generally steep and stony. The trees are predominantly northern hardwoods, but there are some white pines and firs. Most of the farms are dairy farms or orchard farms, or a combination of both. The cleared soils have long slopes that are mostly free of surface stones. Nearly all soils that are used for orchards need drainage in places.

2. *Hollis-Sutton-Buxton association*

Shallow to deep, medium-textured and moderately coarse textured, well drained and moderately well drained, nearly level to steep soils, generally on the tops of low hills and ridges

This association is characterized by irregular topography and many small depressions that have restricted drainage (fig. 3). It takes in nearly all the southern part of Sagadahoc County east of Merrymeeting Bay and occurs as scattered, small areas, generally on the tops of the highest hills and ridges, in Androscoggin County and in the northern part of Sagadahoc County.

About 36,000 acres of Androscoggin County is in association 2, and 78,000 acres of Sagadahoc County. The total is about 24 percent of the two-county area. About 60 percent of the association consists of Hollis soils, about 15 percent of Sutton soils, and about 15 percent of Buxton soils. The remaining 10 percent consists of Charlton, Leicester, Scantic, and other soils, Tidal marsh, and Rock land.

Nearly all of this association is wooded. In Androscoggin County and in the northwestern part of Sagadahoc County, the trees are mainly maple, birch, beech, oak, and other hardwoods, but white pine, hemlock, and fir are common in the moderately well drained areas. White spruce is dominant along the coast in the southern part of Sagadahoc County, but ground juniper, pitch pine, white pine, and Scotch pine grow where the soils are shallow and droughty.

Many areas along the coast in Sagadahoc County are being developed for recreation. Summer cottages, camping areas, and picnic grounds are built, even though most

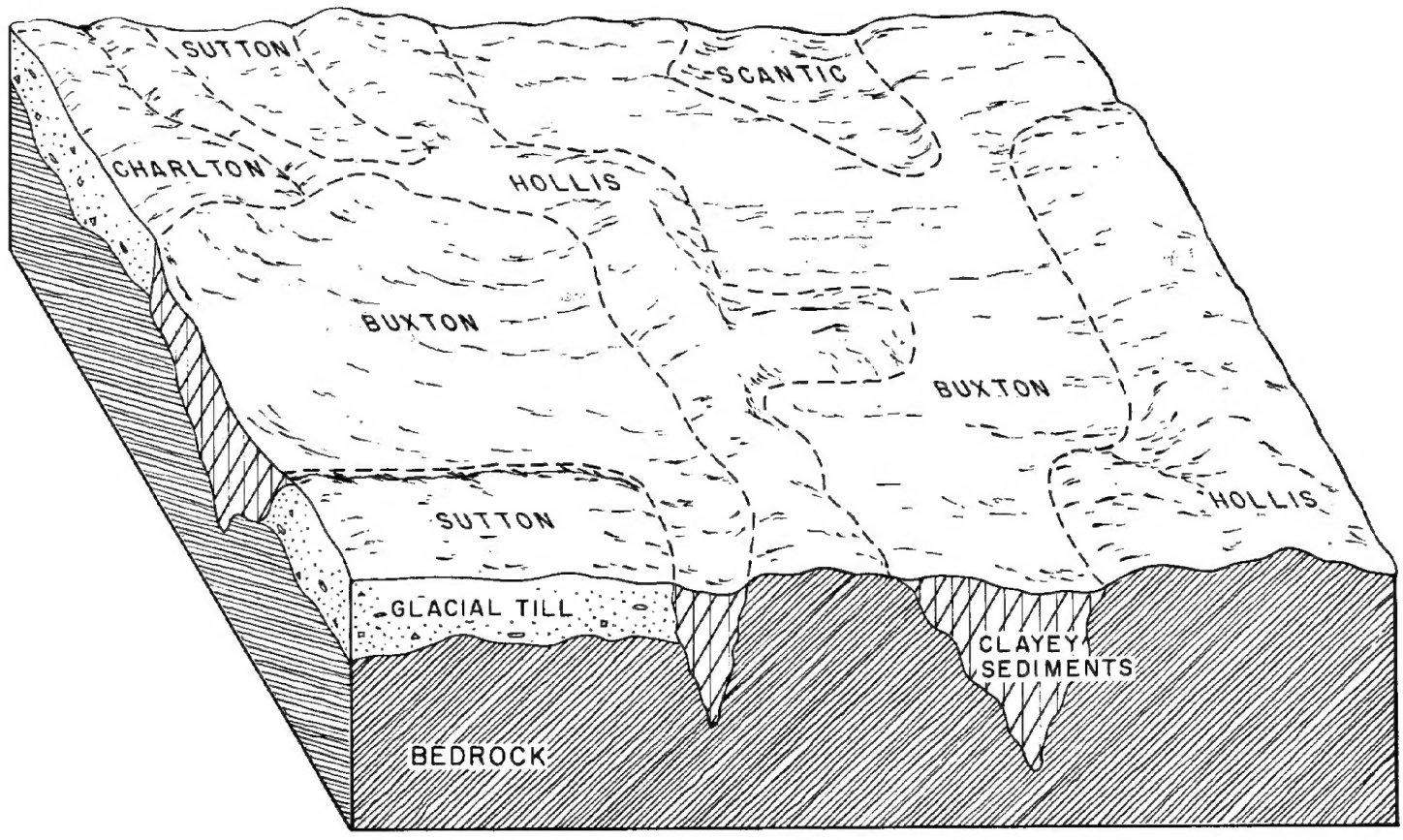

Figure 3.—**Parent material and position of the soils in association 2.**

of these soils have serious limitations for septic tanks. Supplying drinking water is also a problem. Drilled wells are the most common source of water in this area.

3. *Scantic-Leicester-Scarboro association*

Deep, medium-textured and moderately coarse textured, poorly drained and very poorly drained, level to gently sloping soils

This association occurs throughout Androscoggin County, throughout the northern part of Sagadahoc County, and as scattered small areas in the southern part of Sagadahoc County. Scantic soils are dominant in Sagadahoc County and in the southeastern part of Androscoggin County; Leicester soils in the western part of Androscoggin County; and Scarboro soils in the towns of Leeds and Livermore.

About 47,000 acres of Androscoggin County is in association 3, and 20,000 acres of Sagadahoc County. The total is about 15 percent of the two-county area. About 40 percent consists of Scantic soils, about 15 percent of Leicester, and about 15 percent of Scarboro soils. The remaining 30 percent is made up of the very poorly drained Whitman, Biddeford, and Whately soils, Tidal marsh, and Peat and Muck.

Scantic soils occur as wide, nearly level areas in which there are many small depressions that lack surface drainage. Leicester soils are in valleys between ridges and hills of glacial till. Many areas are poorly drained because the outlets that control drainage are in hard bedrock. Scarboro soils are in nearly level depressions on the larger outwash plains and terraces where the water table is at or near the surface most of the time.

About 90 percent of this association is woodland. The forest consists of pine, fir, and northern hardwoods, but the better quality trees are white pines. Many of the farms are poultry or dairy farms. Some areas of the Scantic soils have been improved by constructing a system of drainage ditches and by grading the areas between so that excess water flows freely into the ditches. A few areas of other soils have been similarly improved. Many areas are suitable for development as nesting and feeding sites for migratory waterfowl.

4. *Buxton-Hartland-Belgrade association*

Deep, medium-textured, moderately well drained and well drained, nearly level to moderately steep soils

This association has short, irregular, complex slopes. It is in the southeastern part of Androscoggin County and the northwestern part of Sagadahoc County.

About 46,000 acres of Androscoggin County is in association 4, and 38,000 acres of Sagadahoc County. The total is about 18 percent of the two-county area. About 40 percent consists of Buxton soils, about 15 percent of Hartland soils, about 15 percent of Belgrade soils, and the remaining 30 percent of Suffield, Melrose, Elmwood, and other soils.

Buxton soils, which are moderately well drained, are in Sagadahoc County. Hartland soils, which are well drained, are on the highest terraces along the south side of the Androscoggin River and on narrow ridgetops between streams in and around the towns of Lisbon and Durham in Androscoggin County. Belgrade soils, which are moderately well drained, occur in slight depressions and on the slopes of terraces and ridges, below areas of Hartland soils (fig. 4).

The soils of this association are well suited to truck crops and to most forage crops. Most of the farms are dairy farms or crop farms. The crops are mainly potatoes, snap beans, sweet corn, squash, cucumbers, and tomatoes. Because of small size and irregular, commonly steep slopes, the average field is difficult to farm with modern machinery.

About half of this association is woodland, in which white pine, maple, birch, beech, and ash are dominant.

5. *Adams-Hinckley-Ninigret association*

Deep, excessively drained to moderately well drained, nearly level to moderately steep, coarse textured and moderately coarse textured soils

This association has varied topography that includes bottom lands and terraces, outwash plains, and hills and ridges (fig. 5). The acreage in Androscoggin County is well distributed; nearly all the acreage in Sagadahoc County occurs along the Androscoggin River. Rivers and small streams dissect most areas. In places the water table is high for part of the year.

About 75,000 acres of Androscoggin County is in association 5, and 9,000 acres of Sagadahoc County. The total is about 18 percent of the two-county area. About 50 percent consists of Adams soils, about 20 percent of Hinckley soils, about 20 percent of Ninigret soils, and about 10 percent of Hadley, Winooski, Merrimac, and Agawam soils.

Nearly all the acreage of Adams and Hinckley soils is used for woodland or urban development, but a small acreage is irrigated and used for crops. About half the acreage of Ninigret soils is wooded, and the other half is used for grass, cultivated crops, and urban housing developments. Hadley and the other minor soils are used mainly for grass and cultivated crops.

Descriptions of the Soils

In this section the soils of Androscoggin County and Sagadahoc County are described in detail, their suitability for crops and pasture is indicated, and some facts about management are given. The procedure is to describe first the soil series and then the mapping units in that series. Thus, to get full information on any one mapping unit, it is necessary to read both the description of that unit and the description of the soil series to which the unit

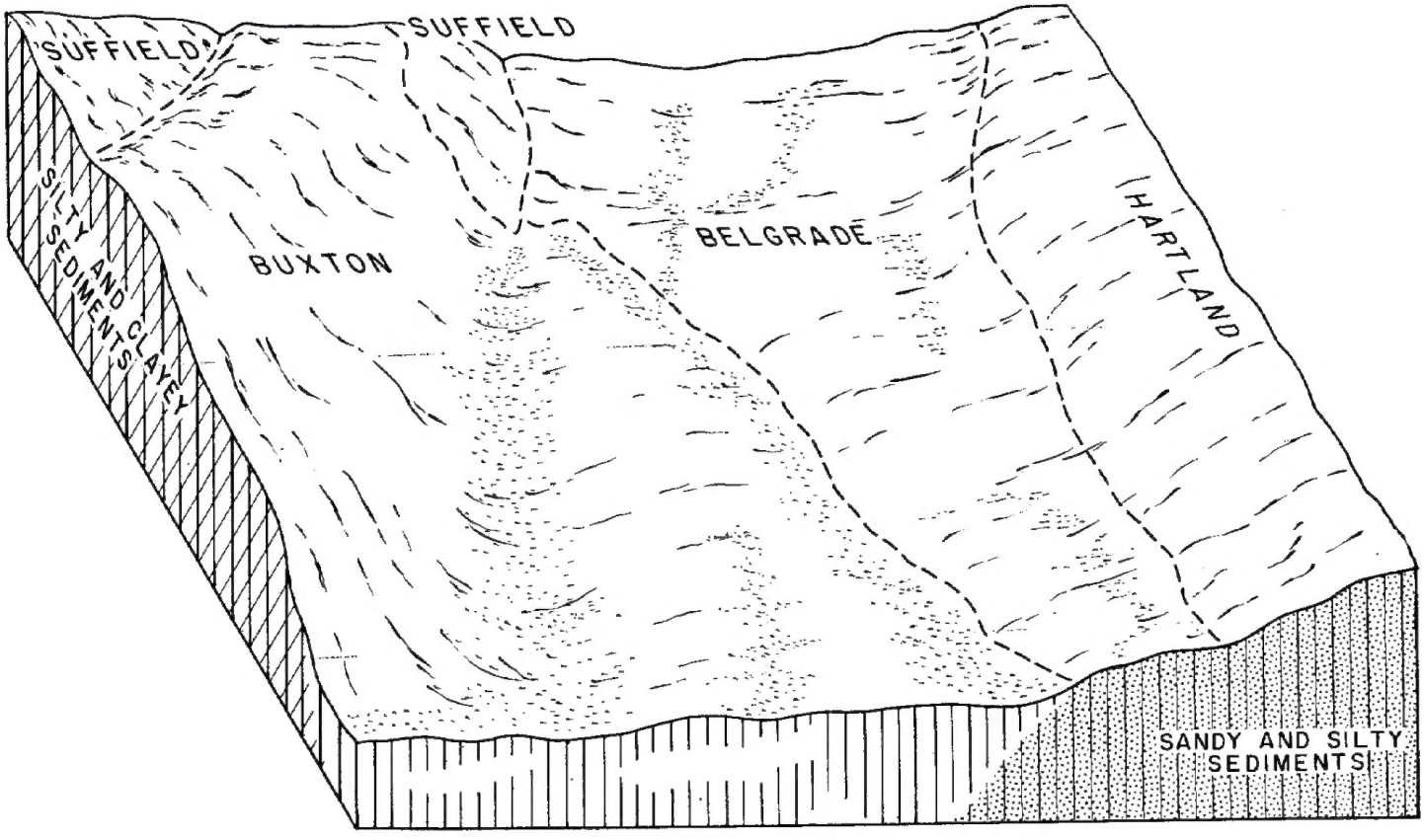

Figure 4.—Parent material and position of the soils in association 4.

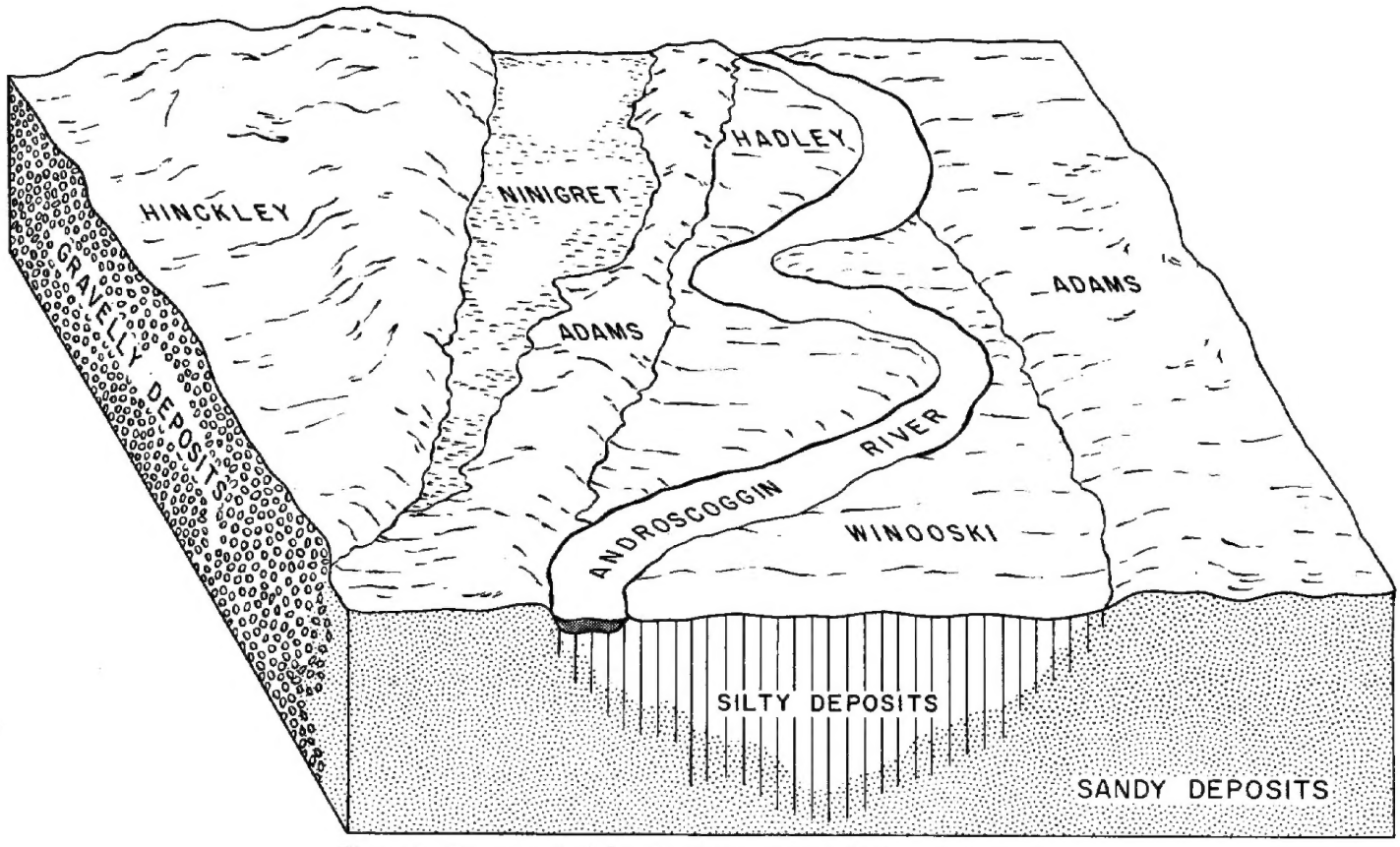

Figure 5.—**Parent material and position of the soils in association 5.**

belongs. The description of each mapping unit contains suggestions on how the soil can be managed.

The description of the soil series includes a description of a profile that is considered representative of all the soils of the series. If the profile of a given mapping unit differs from this typical profile, the differences are stated in the description of the mapping unit, unless they are apparent from the name of the mapping unit. The colors described are for a moist soil, unless otherwise noted. Many of the terms used in describing soil series and mapping units are defined in the Glossary, and some are defined in the section "How This Survey Was Made."

The approximate acreage and proportionate extent of the soils are shown in table 1. At the back of this soil survey is the "Guide to Mapping Units," which lists the mapping units in the two counties and shows the capability unit, woodland group, and wildlife group each mapping unit is in.

TABLE 1.—*Approximate acreage and proportionate extent of the soils*

Soil	Androscoggin County		Sagadahoc County		Total area
	Area	Extent	Area	Extent	
	Acres	*Percent*	*Acres*	*Percent*	*Acres*
Adams loamy sand, 0 to 8 percent slopes	15, 418	5. 0	2, 390	1. 5	17, 808
Adams loamy sand, 8 to 15 percent slopes	17, 793	5. 8	1, 492	. 9	19, 285
Adams loamy sand, 15 to 30 percent slopes	2, 753	. 9	426	. 3	3, 179
Adams very stony loamy sand, 5 to 20 percent slopes	1, 100	. 4	31	(1)	1, 131
Agawam fine sandy loam, 0 to 2 percent slopes	183	. 1	0	0	183
Agawam fine sandy loam, 2 to 8 percent slopes	836	. 3	106	. 1	942
Agawam fine sandy loam, 8 to 15 percent slopes	851	. 3	70	(1)	921
Agawam fine sandy loam, 15 to 30 percent slopes	141	(1)	13	(1)	154
Belgrade very fine sandy loam, 2 to 8 percent slopes	6, 780	2. 2	2, 271	1. 4	9, 051
Belgrade very fine sandy loam, 8 to 15 percent slopes	1, 995	. 7	671	. 4	2, 666
Biddeford silt loam	2, 324	. 8	2, 350	1. 4	4, 674
Buxton silt loam, 0 to 8 percent slopes, eroded	6, 108	2. 0	14, 287	8. 6	20, 395
Buxton silt loam, 8 to 15 percent slopes, eroded	2, 303	. 8	8, 481	5. 2	10, 784
Charlton fine sandy loam, 0 to 8 percent slopes	4, 259	1. 4	1, 546	. 9	5, 805

[1] Less than 0.05 percent.

TABLE 1.—*Approximate acreage and proportionate extent of the soils*—Continued

Soil	Androscoggin County		Sagadahoc County		Total area
	Area	Extent	Area	Extent	
	Acres	*Percent*	*Acres*	*Percent*	*Acres*
Charlton fine sandy loam, 8 to 15 percent slopes, eroded	4, 078	1. 3	1, 407	. 9	5, 485
Charlton fine sandy loam, 15 to 25 percent slopes, eroded	372	. 1	84	(1)	456
Charlton very stony fine sandy loam, 0 to 8 percent slopes	7, 085	2. 3	2, 424	1. 5	9, 509
Charlton very stony fine sandy loam, 8 to 15 percent slopes	31, 259	10. 2	5, 253	3. 2	36, 512
Charlton very stony fine sandy loam, 15 to 25 percent slopes	8, 000	2. 6	446	. 3	8, 446
Coastal beach	13	(1)	412	. 2	425
Dune land	204	. 1	361	. 2	565
Elmwood fine sandy loam, 2 to 8 percent slopes	3, 325	1. 1	909	. 5	4, 234
Elmwood fine sandy loam, 8 to 15 percent slopes, eroded	680	. 2	86	. 1	766
Hadley silt loam	690	. 2	1, 002	. 6	1, 692
Hartland very fine sandy loam, 2 to 8 percent slopes	2, 819	. 9	652	. 4	3, 471
Hartland very fine sandy loam, 8 to 15 percent slopes, eroded	5, 517	1. 8	1, 311	. 8	6, 828
Hartland very fine sandy loam, 15 to 25 percent slopes, eroded	1, 768	. 6	585	. 6	2, 353
Hinckley gravelly sandy loam, 0 to 8 percent slopes	3, 765	1. 2	781	. 5	4, 546
Hinckley gravelly sandy loam, 8 to 15 percent slopes	7, 815	2. 6	1, 042	. 6	8, 857
Hinckley gravelly sandy loam, 15 to 25 percent slopes	1, 581	. 5	152	. 1	1, 733
Hollis fine sandy loam, 0 to 8 percent slopes	4, 314	1. 4	5, 787	3. 5	10, 101
Hollis fine sandy loam, 8 to 15 percent slopes	21, 772	7. 1	18, 350	11. 2	40, 122
Hollis fine sandy loam, 15 to 45 percent slopes	5, 517	1. 8	1, 782	1. 1	7, 299
Hollis very rocky fine sandy loam, 0 to 8 percent slopes	761	. 2	3, 909	2. 4	4, 670
Hollis very rocky fine sandy loam, 8 to 15 percent slopes	6, 835	2. 2	27, 930	17. 0	34, 765
Hollis very rocky fine sandy loam, 15 to 45 percent slopes	5, 364	1. 8	5, 613	3. 4	10, 977
Leicester fine sandy loam	739	. 2	520	. 3	1, 259
Leicester very stony fine sandy loam	9, 403	3. 1	2, 696	1. 6	12, 099
Limerick silt loam	3, 876	1. 3	1, 837	1. 1	5, 713
Made land, loamy materials	1, 249	. 4	54	(1)	1, 303
Made land, sanitary fill	92	(1)	88	. 1	180
Melrose fine sandy loam, 0 to 8 percent slopes	1, 187	. 4	175	. 1	1, 362
Melrose fine sandy loam, 8 to 20 percent slopes	1, 827	. 6	285	. 2	2, 112
Merrimac fine sandy loam, 0 to 8 percent slopes	1, 449	. 5	162	. 1	1, 611
Merrimac fine sandy loam, 8 to 15 percent slopes, eroded	888	. 3	62	(1)	950
Merrimac fine sandy loam, 15 to 25 percent slopes, eroded	248	. 1	21	(1)	269
Ninigret fine sandy loam, 0 to 8 percent slopes	12, 388	4. 0	1, 922	1. 2	14, 310
Ondawa fine sandy loam	165	. 1	237	. 1	402
Paxton loam, 2 to 8 percent slopes	1, 970	. 6	162	. 1	2, 132
Paxton loam, 8 to 15 percent slopes	1, 880	. 6	179	. 1	2, 059
Paxton loam, 15 to 25 percent slopes	321	. 1	0	0	321
Paxton very stony loam, 0 to 8 percent slopes	932	. 3	52	(1)	984
Paxton very stony loam, 8 to 15 percent slopes	4, 471	1. 5	199	. 1	4, 670
Paxton very stony loam, 15 to 30 percent slopes	1, 376	. 4	11	(1)	1, 387
Peat and Muck	3, 522	1. 2	1, 102	. 7	4, 624
Podunk fine sandy loam	205	. 1	203	. 1	408
Rock land-Hollis soil material, 0 to 15 percent slopes	115	(1)	2, 632	1. 6	2, 747
Rock land-Hollis soil material, 15 to 45 percent slopes	160	. 1	1, 386	. 8	1, 546
Saco silt loam	1, 544	. 5	513	. 3	2, 057
Scantic silt loam, 0 to 3 percent slopes	15, 038	4. 9	10, 859	6. 6	25, 897
Scarboro fine sandy loam	7, 823	2. 6	184	. 1	8, 007
Suffield silt loam, 8 to 15 percent slopes, eroded	645	. 2	1, 041	. 6	1, 686
Suffield silt loam, 15 to 30 percent slopes, eroded	431	. 1	3, 210	1. 9	3, 641
Sutton loam, 0 to 8 percent slopes	5, 145	1. 7	2, 445	1. 5	7, 590
Sutton loam, 8 to 15 percent slopes	563	. 2	108	. 1	671
Sutton very stony loam, 0 to 8 percent slopes	19, 746	6. 5	6, 879	4. 2	26, 625
Sutton very stony loam, 8 to 15 percent slopes	3, 453	1. 1	415	. 2	3, 868
Swanton fine sandy loam, 0 to 3 percent slopes	3, 378	1. 1	697	. 4	4, 075
Tidal marsh	0	0	6, 421	3. 9	6, 421
Walpole fine sandy loam	5, 214	1. 7	1, 256	. 8	6, 470
Whately fine sandy loam	1, 183	. 4	117	. 1	1, 300
Whitman loam	391	. 1	71	(1)	462
Winooski silt loam	1, 068	. 4	1, 099	. 7	2, 167
Woodbridge loam, 0 to 8 percent slopes	1, 508	. 5	130	. 1	1, 638
Woodbridge very stony loam, 0 to 8 percent slopes	3, 164	1. 0	341	. 2	3, 505
Sand and gravel pits	642	. 2	189	. 1	831
Stripped land	99	(1)	7	(1)	106
Borrow pits	44	(1)	2	(1)	46
Quarries			99	. 1	99
Total	305, 920	100. 0	164, 480	100. 0	470, 400

[1] Less than 0.05 percent.

Adams Series

The Adams series consists of excessively drained, nearly level to steep, strongly acid, sandy soils that formed in deep deposits of water-laid sand. These soils occur on terraces; on the sides and tops of eskerlike ridges along the streams and rivers; and, in the southern part of Androscoggin County, on large sand plains.

Adams soils in wooded areas typically have a thin surface layer that is very dark gray in the upper part and gray in the lower part. The subsoil is dark brown to yellowish brown. To a depth of about 24 inches, the texture is loamy sand. The underlying material is light olive-brown, loose sand.

Representative profile of an Adams loamy sand (fig. 6) in a thinly wooded area in Topsham, 1 mile west of the junction of U.S. Route 201 and State Route 196, along State Route 196.

Figure 6.—Profile of an Adams loamy sand, showing the depth of root penetration.

O1—1 inch to 0, partly decomposed grass and hardwood leaves.

A1—0 to 2 inches, very dark gray (10YR 3/1) loamy sand; weak, fine, granular structure; friable; strongly acid; clear, smooth boundary. 1 inch to 3 inches thick.

A2—2 to 4 inches, gray (10YR 5/1) loamy sand; weak, fine, granular structure; friable; strongly acid; abrupt, discontinuous boundary. 1 inch to 3 inches thick.

B21h—4 to 6 inches, dark-brown (7.5YR 4/4) loamy sand; weak, fine, granular structure; friable; strongly acid; gradual, smooth boundary. 1 inch to 4 inches thick.

B22ir—6 to 12 inches, strong-brown (7.5YR 5/6) loamy sand; weak, fine, granular structure; friable; strongly acid; gradual, smooth boundary. 4 to 10 inches thick.

B3—12 to 24 inches, yellowish-brown (10YR 5/6) loamy sand; weak, fine, granular structure; friable; strongly acid; gradual, smooth boundary. 10 to 18 inches thick.

C—24 to 40 inches +, light olive-brown (2.5Y 5/4) fine sand; single grain; loose; strongly acid.

The color of the A1 horizon in wooded areas is very dark gray to very dark grayish brown (10YR 3/1 to 3/2). In cultivated areas there is an Ap horizon that is dark brown to dark yellowish brown (10YR 3/3 to 3/4). The thickness of the gray leached A2 horizon ranges from a trace to 6 inches. The B horizon ranges from loamy sand to sand in texture. The C horizon is normally grayish-brown, light olive-brown, or olive-brown (2.5Y 5/2, 5/4, or 4/4) fine sand to coarse sand. The depth to bedrock ranges from 4 to 20 feet. In some places the sandy soil material is underlain by silt and clay at a depth of 5 to 6 feet. Large stones cover 0.1 percent to 3 percent of the surface in some areas.

Adams soils are in the landscape with Agawam, Hinckley, and Merrimac soils. They are coarser textured than Agawam soils. They lack the gravel content that is typical of Hinckley soils. Adams soils have a sandy substratum instead of a gravelly substratum like that of Merrimac soils.

Adams loamy sand, 0 to 8 percent slopes (AcB).—This soil is on the large sand plains and on top of the larger terraces. Included in mapping were scattered outcrops of bedrock and some small depressions in which a seasonal water table is within 24 inches of the surface.

This soil has low natural fertility. Surface runoff is slow, infiltration is rapid, and permeability is rapid.

This soil is better suited to deep-rooted grasses and legumes than to row crops. Irrigation is practical only for small areas that are worked with better soils. Fertilizer leaches out readily. (Capability unit IIIs–5; woodland group 1; wildlife group 5)

Adams loamy sand, 8 to 15 percent slopes (AcC).—This soil is mainly along the rivers and streams. The profile is similar to the representative one described for the series, but the surface layer is thinner and the subsoil is 1 inch to 2 inches thinner. Included in mapping were small areas of steeper soils that have a gravelly substratum at a depth of 24 to 30 inches and scattered outcrops of bedrock or large stones.

Surface runoff is medium, infiltration and permeability are rapid, and the available water capacity is low.

Even if limed and fertilized, this soil is poorly suited to grass and legumes. The slope makes the use of farm machinery hazardous. Most of the stronger slopes are either wooded or idle. (Capability unit IVs–5; woodland group 1; wildlife group 5)

Adams loamy sand, 15 to 30 percent slopes (AcD).—This soil is on the eskerlike ridges along the rivers and streams. The profile is similar to the representative one

described for the series, but the surface layer is only 2 to 3 inches thick and the depth to an olive-gray substratum is 17 or 18 inches. Included in mapping were areas that have slopes of more than 30 percent, areas that have a gravelly substratum at a depth of 30 inches, areas that have a few large stones on the surface, and scattered outcrops of bedrock.

Surface runoff is medium, infiltration and permeability are rapid, and the available water capacity is low.

Droughtiness and moderately steep slopes make it difficult to use this soil for pasture or woodland. Native bluegrass or drought-resistant grasses are the only suitable pasture plants. (Capability unit VIs–5; woodland group 1; wildlife group 8)

Adams very stony loamy sand, 5 to 20 percent slopes (AbD).—This soil is on the side of ridges below stony or shallow soils and at the bottom of slopes below the very stony Charlton and Paxton soils or the very rocky Hollis soils. The profile is similar to the representative one described for the series, but it is very stony, has a thicker organic surface layer, and has a darker brown subsoil. The stones on the surface and in the profile are similar to those in the Charlton, Paxton, and Hollis soils on the slopes above. Included in mapping were small areas that are shallow to bedrock and small areas of very stony fine sandy loam.

Surface runoff is slow, infiltration and permeability are rapid, and the available water capacity is low.

The use of this soil for native pasture is limited by droughtiness and stoniness. Most of the acreage is forested. (Capability unit VIs–53; woodland group 1; wildlife group 8)

Agawam Series

The Agawam series consists of deep, well-drained, nearly level to steep soils on outwash plains and on terraces along the Androscoggin River and the Little Androscoggin River.

Agawam soils in wooded areas typically have a thin, dark yellowish-brown surface layer and a subsoil that is strong brown in the upper part, yellowish brown in the middle part, and light olive brown in the lower part. The texture to a depth of about 37 inches is fine sandy loam. The underlying material is olive, loose loamy very fine sand and very fine sand.

Representative profile of Agawam fine sandy loam, 2 to 8 percent slopes, (fig. 7) in a gravel pit in a wooded area in the town of Leeds, one-fourth of a mile north of the junction of State Routes 106 and 219 and on the east side of State Route 106.

A1—0 to 3 inches, dark yellowish-brown (10YR 4/4) fine sandy loam; weak, fine, granular structure; friable; very strongly acid; clear, smooth boundary. 2 to 4 inches thick.

B21—3 to 10 inches, strong-brown (7.5YR 5/8) fine sandy loam; weak, fine, granular structure; friable; strongly acid; clear, smooth boundary. 6 to 8 inches thick.

B22—10 to 20 inches, yellowish-brown (10YR 5/4) fine sandy loam; weak, fine, granular structure; friable; strongly acid; gradual, smooth boundary. 8 to 12 inches thick.

B3—20 to 37 inches, light olive-brown (2.5Y 5/4) fine sandy loam; weak, fine, granular structure; friable; strongly acid; abrupt, wavy boundary. 15 to 18 inches thick.

C1—37 to 43 inches, olive (5Y 5/3) loamy very fine sand; single grain; friable; strongly acid; clear, wavy boundary. 5 to 7 inches thick.

C2—43 to 72 inches, olive (5Y 5/3) very fine sand; single grain; loose; strongly acid; abrupt, wavy boundary. 20 to 35 inches thick.

IIC3—72 to 144 inches, black (N 2/0) and gray (N 6/0) very gravelly and cobbly sand; single grain; loose; strongly acid; 50 percent gravel and 30 percent cobblestones.

The A horizon is dark yellowish brown (10YR 4/4) or dark brown (10YR 3/3). The B horizon ranges from strong brown (7.5YR 5/6) to yellowish brown (10YR 5/4) in color, except in cultivated areas, where it is lighter brown. It is very fine sandy loam to sandy loam in texture. The C horizon ranges from light olive-brown (2.5Y 5/4 or 5/6) to olive gray or olive (5Y 5/2 or 5/3). Gravel occurs at a depth of 6 to 10 feet.

These soils are in the landscape with the well drained Hartland soils and the moderately well drained Belgrade soils.

Agawam fine sandy loam, 0 to 2 percent slopes (AdA).—This soil is on outwash plains and high terraces. Included in mapping were some moderately well drained

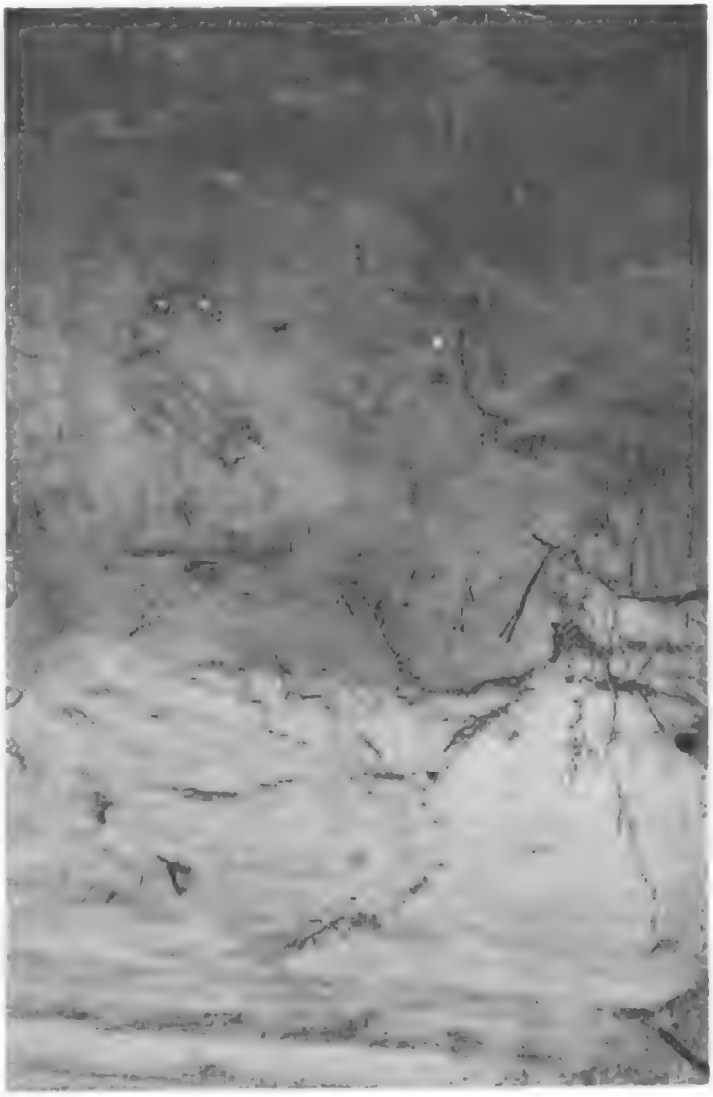

Figure 7.—Profile of an Agawam fine sandy loam.

silty soils in small depressions and some areas of loamy fine sand and loamy very fine sand.

This soil is slightly acid to strongly acid. Natural fertility is low. Permeability is rapid, and the available water capacity is high.

This soil is well suited to sweet corn, snap beans, potatoes, and other vegetables. It is also suited to intensive production of feed crops, including sudangrass, millet, alfalfa, orchardgrass, and corn grown for silage.

Lime, commercial fertilizer, and manure are needed. Fertility can be increased by using crop residue and including winter cover crops and green-manure crops in a good system of crop rotation. Irrigation is beneficial to crops in about 2 years out of 3. (Capability unit I–5; woodland group 3; wildlife group 1)

Agawam fine sandy loam, 2 to 8 percent slopes (AdB).—This soil is on high terraces. The profile is like the representative one described for the series, except that in most areas as a result of cultivation the surface layer is 6 to 10 inches thick. Included in mapping were small areas of Agawam fine sandy loam, 0 to 2 percent slopes, and spots where moderately well drained fine sandy loam and very fine sandy loam occur in small depressions.

This soil is slightly acid to strongly acid. Natural fertility is low. Surface runoff is slow, permeability is rapid, and the available water capacity is high.

This soil is better suited to alfalfa, orchardgrass, and other deep-rooted grasses and legumes than to other crops. If irrigated, it is also well suited to potatoes, beans, sweet corn, tomatoes, cucumbers, carrots, and other vegetables.

Lime, commercial fertilizer, and manure are needed. Fertility can be increased by using crop residue and including cover crops and green-manure crops in a good system of crop rotation. Irrigation is beneficial to shallow-rooted cultivated crops. (Capability unit IIe–5; woodland group 3; wildlife group 1)

Agawam fine sandy loam, 8 to 15 percent slopes (AdC).—This soil is on high terraces and outwash plains. The profile is similar to the representative one described for the series, but the surface layer is only 1 inch to 2 inches thick, the uppermost layer of the subsoil is dark brown to yellowish brown and is as much as 6 inches thick, and the depth to the substratum of loamy sand is only 24 to 36 inches.

Included in mapping were areas, 10 to 30 feet wide, of less sloping, moderately well drained soils between slopes and small areas of silt loam and very fine sandy loam on the terraces.

This soil is strongly acid. Natural fertility is low. Permeability is rapid, and the available water capacity is high. Surface runoff is medium, and sheet erosion is a moderate hazard.

This soil is well suited to grass and legumes, especially orchardgrass and alfalfa. It is suited to cultivated crops, if runoff and erosion are controlled.

Lime and fertilizer are needed. Fertility can be improved by using crop residue and including winter cover crops and green-manure crops in a good system of crop rotation. Control of runoff is needed to help control erosion and to make more moisture available to plants. Irrigation would benefit crops 2 years out of 3. (Capability unit IIIe–5; woodland group 3; wildlife group 1)

Agawam fine sandy loam, 15 to 30 percent slopes (AdD).—This soil occurs as long narrow areas on high terraces. The profile is similar to the representative one described for the series, but the surface layer is only 1 inch to 2 inches thick, the proportion of coarse sand in the B horizon is generally greater, and the depth to the substratum of loamy sand is only 24 to 30 inches.

Included in mapping were areas, 1 acre or less in size, of similar soil that has slopes of more than 30 percent.

These soils are very strongly acid to slightly acid. Fertility is low. Surface runoff is medium, and in cultivated areas erosion is a severe hazard. Permeability is rapid.

This soil is used mostly for pasture or woodland.

Lime and fertilizer are needed. Diversion terraces and stripcropping control surface runoff and thus help to control erosion, but the use of farm machinery is limited by the steep slopes. The choice of a suitable seed mixture is necessary for good pasture. (Capability unit IVe–5; woodland group 3; wildlife group 10)

Belgrade Series

The Belgrade series consists of moderately well drained soils that formed in stratified lacustrine sediments the texture of very fine sandy loam and silt loam. These soils occur in depressions and along drainageways.

Belgrade soils have a 9-inch plow layer of very dark grayish-brown very fine sandy loam and a subsoil of brown and olive silt loam mottled below a depth of 16 inches with reddish brown and light olive gray. The underlying material, below a depth of 28 inches, is olive-gray very fine sandy loam mottled with reddish brown, light gray, and yellowish brown.

Representative profile of Belgrade very fine sandy loam, 2 to 8 percent slopes, in town of Lisbon along the west side of State Route 125, about 1 mile south of Higgins Corner.

Ap—0 to 9 inches, very dark grayish-brown (10YR 3/2) very fine sandy loam; moderate, medium, granular structure; friable; strongly acid; abrupt, smooth boundary. 6 to 12 inches thick.

B21—9 to 16 inches, brown (10YR 4/3) silt loam; moderate, medium, granular structure; friable; strongly acid; clear, smooth boundary. 5 to 8 inches thick.

B22—16 to 28 inches, olive (5Y 5/3) silt loam; common, coarse, prominent mottles of reddish brown (5YR 4/3) and light olive gray (5Y 6/2); moderate, coarse, prismatic structure breaking to weak, medium, subangular blocky; prism walls of gray (5Y 5/1) silt, ¼ inch thick; friable; medium acid; gradual, wavy boundary. 6 to 20 inches thick.

C—28 to 40 inches, olive-gray (5Y 5/2) very fine sandy loam; many, coarse, prominent mottles of reddish brown (5YR 4/3), light gray (10YR 6/1), and yellowish brown (10YR 5/6); few, weak, very coarse prisms with walls of gray (5Y 5/1) silt loam about ¼ inch thick; friable; firm lenses of silt loam ½ inch to 2 inches thick; medium acid or slightly acid.

The A horizon is very dark grayish brown (10YR 3/2) or brown (10YR 4/3) and has moderate to strong granular structure. The B horizon is fine sandy loam to silt loam and is brown or dark yellowish brown (10YR 4/3 or 4/4) in the upper part and is mottled below a depth of 15 to 20 inches with light gray (5Y 7/2), yellowish brown (10YR 5/4), reddish brown (5YR 4/3), and light olive gray (5Y 6/2). The C horizon is olive-gray or olive (5Y 4/2 or 5/6) fine sandy loam to silt loam and has lenses of silt loam or very fine sandy loam. It has mottles that are similar in color and abundance to those in the B horizon but are larger. The depth to bedrock is more than 10 feet.

Belgrade soils are near the well-drained Hartland and Agawam soils and the poorly drained Swanton and Scantic soils. They are similar to Buxton soils in drainage, but they formed in coarser textured material.

Belgrade very fine sandy loam, 2 to 8 percent slopes (BgB).—This soil occurs as narrow strips at the bottom of slopes and in small depressions, mostly in the southeastern part of Androscoggin County. The profile is the representative one described for the series. Included in mapping were a few small areas of somewhat poorly drained and poorly drained soils.

Surface runoff is medium, permeability is moderately slow or slow, and the available water capacity is high.

This soil is well suited to grass, legumes, and most short-season vegetables. Nearly all areas have been cultivated.

Lime and fertilizer are needed. Field ditches, land smoothing between the ditches, and other drainage practices are needed because this soil holds a large amount of water that drains out slowly in spring. These practices also shorten the time required for the soil to warm up enough so crops can grow. Other practices needed include careful selection of crop varieties, growing cover crops and green-manure crops in a good system of crop rotation, and use of crop residue. (Capability unit IIw–7; woodland group 4; wildlife group 2)

Belgrade very fine sandy loam, 8 to 15 percent slopes (BgC).—This soil occurs along drainageways. The profile is similar to the representative one described for the series, but the surface layer is only 4 to 6 inches thick, the subsoil is 1 inch or 2 inches thinner, and the depth to mottling is several inches greater. Springs and seep spots are common. Included in mapping were small areas of Belgrade soils that have slopes of more than 15 percent and, if cultivated, are subject to severe erosion.

Surface runoff is medium to rapid, permeability is moderately slow, and the available water capacity is high.

This soil is well suited to hay crops and pasture.

Lime and fertilizer are needed. The seep spots can be developed as sources of livestock water, or they can be drained by placing tile drains parallel to the line of seepage. Other beneficial practices are careful selection of crop varieties and a good system of crop rotation. (Capability unit IIIew–7; woodland group 4; wildlife group 1)

Biddeford Series

The Biddeford series consists of very poorly drained, nearly level, dark-colored loamy soils that formed where marine and lacustrine deposits of silt and clay filled in depressions. These soils are along the coast and on inland marine terraces.

Biddeford soils typically have a surface layer, about 11 inches thick, of black silt loam underlain by gray silt loam. The subsoil is mottled, greenish-gray silty clay loam over mottled, gray silty clay loam. The underlying material, at a depth of 32 inches, is dark bluish-gray silty clay loam many feet thick.

Representative profile of Biddeford silt loam in a wooded area one-half mile west of Bowdoin Center, on the north side of State Route 125.

A1—0 to 7 inches, black (10YR 2/1) silt loam; moderate, medium, granular structure; friable; strongly acid; clear, smooth boundary. 6 to 9 inches thick.

A2g—7 to 11 inches, gray (5Y 5/1) silt loam; weak, thin, platy structure; friable; sticky when wet; strongly acid; clear, wavy boundary. 2 to 6 inches thick.

B2g—11 to 24 inches, greenish-gray (5GY 5/1) silty clay loam; many, coarse, prominent mottles of strong brown (7.5YR 5/8) and light olive brown (2.5Y 5/6); weak, very coarse, prismatic structure breaking to moderate, fine, subangular blocky; firm when moist, very sticky when wet; medium acid; clear, smooth boundary. 10 to 15 inches thick.

B3g—24 to 32 inches, gray (5Y 5/1) silty clay loam; many, medium, prominent mottles of dark greenish gray (5BG 4/1); weak, coarse, prismatic structure breaking to weak, coarse, subangular blocky; very sticky when wet; many root channels stained strong brown (7.5YR 5/8); medium acid; gradual, smooth boundary. 6 to 10 inches thick.

Cg—32 to 48 inches +, dark bluish-gray (5B 4/1) silty clay loam; massive; plastic; many root channels stained strong brown (7.5YR 5/8); medium acid.

The A horizon is dark gray (5Y 4/4) to black (10YR 2/1) in the upper part and gray (N 3/0, 4/0, or 5/0), greenish gray (5GY 5/1), or bluish gray (5B 5/1) in the lower part. The A2 horizon has thin platy structure or fine granular structure. The A horizon and the upper part of the B2 horizon are generally free of mottles, but root channels in some areas are prominently stained with colors of the 7.5YR hue. The B horizon ranges from silty clay loam to clay in texture. The B2 horizon ranges from gray (N 3/0) to bluish gray (5B 5/1) but is commonly greenish gray (5GY 5/1). It has medium to coarse blocky structure and secondary structure that is very coarse prismatic. The C horizon is gray, dark bluish-gray, or greenish-gray silty clay loam to clay. The depth to bedrock ranges from 5 to 80 feet.

Biddeford soils are in the landscape with the well drained Suffield soils, the moderately well drained Buxton soils, and the poorly drained Scantic soils.

Biddeford silt loam (0 to 3 percent slopes) (Bo).—This soil receives water from surrounding areas and is ponded more than half the year. Most of it has slopes of 1 percent or less. This soil has the profile described as representative for the Biddeford series. In some places there is a layer of mucky organic material at the surface; it ranges from 1 inch to as much as 18 inches in thickness.

This soil is strongly acid and generally is low in fertility. Surface runoff is ponded to slow, permeability is very slow, and the available water capacity is very high.

The vegetation consists of reeds, sedges, and water-tolerant trees. Drainage is generally not feasible, because of the lack of adequate outlets. (Capability unit VIw–7; woodland group 6; wildlife group 4)

Buxton Series

The Buxton series consists of deep, moderately well drained soils that formed in marine or lacustrine deposits of silt and clay over bedrock, glacial till, or sand and gravel. These soils occupy small low knolls and the perimeter of large wet flats in Androscoggin County and rolling areas intermixed with small knolls in Sagadahoc County. About two-thirds of the acreage is in Sagadahoc County, and the rest is in Androscoggin County.

Buxton soils typically have a surface layer of dark grayish-brown silt loam about 8 inches thick. The upper subsoil is brown silt loam over olive-brown silt loam. The lower subsoil is olive silt loam over olive silty clay loam mottled with yellowish brown and light gray. The subsoil extends to a depth of about 30 inches. The underlying material is olive-gray silty clay loam.

Representative profile of Buxton silt loam, 0 to 8 percent slopes, eroded, along the White Road in the town of Bowdoinham about 1 mile south of the Richmond town line.

Ap—0 to 8 inches, dark grayish-brown (10YR 4/2) silt loam; weak, fine, granular structure; friable; many grass roots; medium acid. 6 to 10 inches thick.

B21—8 to 12 inches, brown (10YR 4/3) silt loam; weak, fine, granular structure; friable; many grass roots; medium acid; clear, wavy boundary. 5 to 7 inches thick.

B22—12 to 18 inches, olive-brown (2.5Y 4/4) silt loam; weak, fine, granular structure; friable; medium acid; clear, wavy boundary. 3 to 5 inches thick.

A'2—18 to 22 inches, olive (5Y 5/3) silt loam; many, medium, prominent mottles of yellowish brown (10YR 5/6) and light gray (5Y 7/2); moderate, medium, granular structure; friable, firm in place; medium acid; clear, wavy boundary. 3 to 6 inches thick.

IIB'2—22 to 30 inches, olive (5Y 4/3) silty clay loam; many, fine, distinct mottles of yellowish brown (10YR 5/6) and light gray (5Y 7/2); weak, very coarse, prismatic structure breaking to moderate, medium, subangular blocky; firm; medium acid; common films of light olive-gray (5Y 6/2) silt and clay in pores and root channels and on ped faces; clear, wavy boundary. 6 to 10 inches thick.

IIC—30 to 48 inches, olive-gray (5Y 4/2) silty clay loam; very coarse, prismatic structure breaking to coarse, subangular blocky; few clay films in pores and root channels; thick silt coats on prism faces; thin black films on ped faces; firm when moist, hard when dry; neutral.

The Ap horizon is very dark grayish brown (10YR 3/2), dark grayish brown (10YR 4/2), or dark brown (10YR 3/3). The B horizon ranges from brown (10YR 4/3) or dark yellowish brown (10YR 4/4) to olive brown (2.5Y 4/4) in color and from silt loam to silty clay loam in texture. The A'2 horizon is olive (5Y 5/3) and olive-gray (5Y 5/2) silt loam to silty clay loam mottled with light gray (5Y 7/2) to yellowish brown (10YR 5/6) and has structure ranging from weak to moderate in grade and from platy to granular in type. The mottles in the A'2 horizon extend upward 1 inch or 2 inches into the B22 horizon in a few places. The IIB'2 horizon is olive (5Y 4/4) and olive gray (5Y 5/2) mottled with light gray (5Y 7/2) to yellowish brown (10YR 5/6). The IIC' horizon is olive (5Y 4/4) and olive gray (5Y 4/2 or 5/2). The C horizon is at a depth of 24 to 36 inches.

In Androscoggin County, Buxton soils are in the landscape with Scantic and other upland till soils, and in Sagadahoc County, they are in the landscape with Suffield, Scantic, and Biddeford soils.

Buxton silt loam, 0 to 8 percent slopes, eroded (BuB2).—The profile of this soil is the representative one described for the series. Included in mapping were small pockets and strips of poorly drained soil, small areas of soil that formed in glacial till, and small areas of shallow soil that include scattered outcrops. Also included were a few areas of a soil that has IIB and IIC horizons of silt loam.

Surface runoff is medium, permeability is very slow, and the available water capacity is high.

This soil is well suited to grass, legumes, and most short-season vegetables.

Lime and fertilizer are needed. Field ditches and land smoothing are needed to improve drainage and thus shorten the time required for the soil to warm up enough so crops will grow. Other beneficial practices include careful selection of crop varieties, inclusion of cover crops and green-manure crops in a good system of crop rotation, and utilization of crop residues. (Capability unit IIw–7; woodland group 4; wildlife group 2)

Buxton silt loam, 8 to 15 percent slopes, eroded (BuC2).—Areas of this soil have irregular topography characterized by short complex slopes (fig. 8). The profile is similar to the representative one described for the series, but the surface layer is only 4 to 6 inches thick and the upper part of the B horizon is only 2 or 3 inches thick. Included in mapping were a few severely eroded areas and a few areas that have slopes of more than 15 percent.

Surface runoff is rapid or very rapid, permeability is very slow, and the available water capacity is high. Erosion is a severe hazard in disturbed or unprotected areas, particularly in the spots where seepage accumulates.

This soil is well suited to hay and to pasture.

Lime and fertilizer are needed. Seep spots can be developed as a source of water for livestock, or they can be drained with tile. Tile installed parallel to the line of seepage provides the best drainage. Other practices needed include careful selection of crop varieties and a good system of crop rotation. (Capability unit IIIew–7; woodland group 4; wildlife group 1)

Charlton Series

The Charlton series consists of deep, well-drained soils that formed in glacial till derived mainly from schistose rock. These soils are on the sides and tops of ridges throughout the two-county area.

Charlton soils typically have a surface layer of dark-brown fine sandy loam about 7 inches thick. The subsoil, which extends to a depth of about 24 inches, is fine sandy loam that is dark yellowish brown or yellowish brown in the upper layers and light olive brown in the lower layer. It contains a large amount of coarse fragments. The underlying material is olive-gray fine sandy loam that contains a large amount of coarse fragments.

Representative profile of Charlton fine sandy loam, 0 to 8 percent slopes, on Maple Ridge in North Auburn.

Ap—0 to 7 inches, dark-brown (10YR 4/3) fine sandy loam; weak, fine, granular structure; friable; many roots; about 5 percent coarse fragments more than 2 millimeters in diameter; strongly acid; clear, smooth boundary. 6 to 8 inches thick.

B21—7 to 10 inches, dark yellowish-brown (10YR 4/4) fine sandy loam; weak, fine, granular structure; friable; many roots; about 10 percent coarse fragments more than 2 millimeters in diameter; strongly acid; clear, smooth boundary. 2 to 6 inches thick.

B22—10 to 18 inches, yellowish-brown (10YR 5/6) fine sandy loam; weak, fine, granular structure; friable; many roots; about 15 percent coarse fragments more than 2 millimeters in diameter; strongly acid; clear, wavy boundary. 6 to 12 inches thick.

B23—18 to 24 inches, light olive-brown (2.5Y 5/4) fine sandy loam; weak, medium, granular structure; friable; roots common; about 15 percent coarse fragments more than 2 millimeters in diameter; strongly acid; clear, irregular boundary. 5 to 8 inches thick.

C—24 to 40 inches, olive-gray (5Y 5/2) fine sandy loam; weak, medium to thick, platy structure or massive; friable; few roots; about 15 percent coarse fragments more than 2 millimeters in diameter; strongly acid.

The A horizon is dark brown (10YR 4/3 or 3/3) or dark grayish brown (10YR 3/2). The B horizon is dominantly fine sandy loam but is very fine sandy loam in some places. The structure of these two horizons ranges from weak to moderate in grade and from fine to coarse in class. The B21 horizon is strong brown (7.5YR 5/8) to dark brown (10YR

4/3 or 3/3) and dark yellowish brown (10YR 4/4), and the B22 and B23 horizons are brown (10YR 4/3) to yellowish brown (10YR 5/6) or light olive brown (2.5Y 5/4). The solum is 24 to 30 inches thick. The C horizon is olive to olive gray and has a color hue of 5Y, a value of 4 or 5, and a chroma of 2 to 4. It ranges from fine sandy loam to loamy fine sand but is dominantly fine sandy loam.

Charlton soils are in the landscape with the moderately well drained Sutton soils, the poorly drained Leicester soils, and the well drained Hollis soils.

Charlton fine sandy loam, 0 to 8 percent slopes (CfB).—The profile of this soil is the representative one described for the series. Included in mapping were a few areas of soil that has a substratum of loamy sand, some small areas that have a fragipan, some small pockets of moderately well drained soil, and a few small outcrops of bedrock.

Surface runoff is slow, infiltration is rapid, permeability is moderate to rapid, and the available water capacity is high.

These soils are well suited to potatoes, beans, sweet corn, silage corn, and other cultivated crops, as well as to grass and to alfalfa and other legumes.

Lime and fertilizer are needed. Fertility can be improved by a good system of crop rotation that includes green-manure crops and winter cover crops and by the use of crop residue. Irrigation is feasible. (Capability unit IIe-3; woodland group 3; wildlife group 1)

Charlton fine sandy loam, 8 to 15 percent slopes, eroded (CfC2).—The profile of this soil is similar to the representative one described for the series, but the surface layer is lighter brown and only 5 to 6 inches thick, and the solum is 3 to 5 inches thinner. Included in mapping were a few small areas that have a fragipan at a depth of 18 to 24 inches, a few pockets that are moderately well drained, some pockets where springs flow the year round, a few spots that are shallow to bedrock, and some areas where the lower part of the B horizon and the C horizon are loamy sand.

Surface runoff is medium, permeability is moderate, and the available water capacity is high.

This soil is well suited to grass and legumes grown for hay and pasture, and it is good for apple orchards. It is well suited to cultivated crops if runoff is controlled.

Lime and fertilizer are needed. Other practices needed include careful selection of crop varieties and the use of a good system of crop rotation. (Capability unit IIIe-3; woodland group 3; wildlife group 1)

Charlton fine sandy loam, 15 to 25 percent slopes, eroded (CfD2).—The profile of this soil is similar to the representative one described for the series, but the surface layer is only 3 to 5 inches thick, the solum is only 15 to 22 inches thick, and the content of coarse fragments is higher. Included in mapping were small areas that have

Figure 8.—In the background, the short irregular slopes of Buxton silt loam, 8 to 15 percent slopes, eroded; in the foreground, a level area of Scantic silt loam.

a fragipan at a depth of 18 to 24 inches, a few areas that are shallow to bedrock, a few pockets of moderately well drained soil around springs, a few areas of loamy sand, and a few areas that have slopes of more than 25 percent.

Surface runoff is rapid, permeability is moderate, and the available water capacity is moderate.

These soils are well suited to hay and pasture and to apple orchards. The response to fertilizer is good. The slope makes the use of farm machinery difficult. (Capability unit IVe–3; woodland group 3, wildlife group 10)

Charlton very stony fine sandy loam, 0 to 8 percent slopes (ChB).—The profile of this soil is similar to the representative one described for the series, but there are enough stones on the surface and in the soil to interfere with cultivation. The stone content is less than 3 percent. Included in mapping were small areas that are shallow to bedrock, small areas that have a fragipan at a depth of 18 to 20 inches, small areas that have loamy sand and gravelly loamy sand in the lower part of the B horizon and in the C horizon, and small areas that are moderately well drained.

Surface runoff is slow, and permeability is rapid in the surface layer and subsoil and moderate in the substratum. The available water capacity is high.

This soil is well suited to commercial woodland, and the more sloping areas, which have good air drainage and consequently are free of frost pockets, are suitable for apple orchards. Nearly all the acreage is wooded, but some areas have been cleared and are used mostly for long-term production of hay or pasture.

The main limitation is large stones. More stones are exposed each time that the soil is plowed for reseeding of hay and pasture. (Capability unit VIs–3; woodland group 3; wildlife group 7)

Charlton very stony fine sandy loam, 8 to 15 percent slopes (ChC).—The profile of this soil is similar to the representative one described, but there are enough stones on the surface and in the soil to interfere with cultivation. The stone content is less than 3 percent. Included in mapping were small areas that are shallow to bedrock; small areas of loamy sand, gravelly loamy sand, and silt loam; areas of moderately well drained soils; and a few areas in which more than 3 percent of the surface is covered with stones.

Surface runoff is medium, and permeability is rapid in the surface layer and subsoil and moderate in the substratum. The available water capacity is high.

This soil is well suited to apple orchards because it has good air drainage and consequently is free of frost pockets. It is also well suited to commercial woodland. Nearly all the acreage is wooded, but some areas have been cleared. Most cleared areas are used for long-term production of hay or pasture. Some are used for apple orchards or pasture.

The main limitation is large stones. More stones are exposed each time that the soil is plowed for reseeding of hay and pasture. (Capability unit VIs–3; woodland group 3; wildlife group 7)

Charlton very stony fine sandy loam, 15 to 25 percent slopes (ChD).—The profile of this soil is similar to the representative one described for the series, but there are enough stones on the surface and in the soil to interfere with cultivation. The stone content is less than 3 percent. Included in mapping were small areas that are shallow to bedrock; some areas that have slopes of more than 25 percent; a few areas that have more than 3 percent of the surface covered with stones; a few moderately well drained areas on benches and around springs; and small areas of loamy sand, gravelly loamy sand, and silt loam.

Surface runoff is rapid, and permeability is rapid in the surface layer and subsoil and moderate in the substratum. The available water capacity is moderate to high.

This soil is well suited to commercial woodland. It is limited as a site for orchards because the slope makes the use of heavy equipment hazardous. Nearly all the acreage is wooded, but a few small areas have been cleared and are used for the long-term production of hay and pasture. The major limitations are the moderately steep slope and the large stones. (Capability unit VIs–3; woodland group 3; wildlife group 8)

Coastal Beach

Coastal beach (Ck) consists of deposits of loose, rounded, water-worked sand of varying thickness underlain by silt, clay, and bedrock. Generally, these deposits extend inland from the waterline at low tide to a distance of 100 to 300 feet beyond the waterline at high tide. There are two large areas and several small ones along the coast in Sagadahoc County. Included in mapping were some natural, narrow, sandy beaches on a few lakes in Androscoggin County.

Coastal beach is suitable for wildlife and recreational uses. It cannot be farmed. (Capability unit VIIIs–5; woodland group 8; wildlife group 13)

Dune Land

Dune land (Du) consists of loose sand deposits ranging from 5 to more than 25 feet in depth and continually being shifted by the wind. It occurs as gently rolling areas 2 to 20 acres in size scattered throughout the two-county area. The dunes are generally 3 to 5 feet high. A large proportion of the sand grains are fine and medium in size and have been subrounded by the action of wind or water. Dune land cannot be farmed, but it is suitable for wildlife and recreation areas. (Capability unit VIIIs–5; woodland group 8; wildlife group 13)

Elmwood Series

The Elmwood series consists of moderately well drained soils that formed in moderately coarse textured material over fine textured or moderately fine textured lacustrine or marine sediments.

A typical profile has a surface layer of dark-brown fine sandy loam about 9 inches thick. The subsoil is yellowish-brown sandy loam about 7 inches thick over mottled light olive-brown sandy loam. Below this is a thin layer of olive-gray sandy loam, and then pale-olive silty clay loam that extends to a depth of about 31 inches. The substratum is olive silty clay loam.

Representative profile of Elmwood fine sandy loam, in an area of grassland along State Route 24, in the town of Topsham, about one-half mile south of the cemetery.

Ap—0 to 9 inches, dark-brown (10YR 4/3) fine sandy loam; moderate, fine, granular structure; friable; many grass roots; medium acid; abrupt, smooth boundary. 6 to 10 inches thick.

B21—9 to 16 inches, yellowish-brown (10YR 5/6) sandy loam; weak, fine, granular structure; friable; roots common; medium acid; clear, wavy boundary. 3 to 8 inches thick.

B22—16 to 21 inches, light olive-brown (2.5Y 5/6) sandy loam; common, medium, prominent mottles of strong brown (7.5YR 5/8); massive; friable; few roots; medium acid; clear, wavy boundary. 5 to 8 inches thick.

A'2—21 to 23 inches, olive-gray (5Y 5/2) sandy loam; common, medium, prominent mottles of dark yellowish-brown (10YR 4/4); massive; friable; medium acid; abrupt, wavy boundary. Trace to 4 inches thick.

IIB'2—23 to 31 inches, pale-olive (5Y 6/3) silty clay loam; common, medium, prominent mottles of yellowish brown (10YR 5/8); moderate, fine, subangular blocky structure; firm; slightly acid; a few films of clay or silt on vertical ped faces, very few on horizontal faces; thin films of silt and clay in root channels and pores; clear, wavy boundary. 4 to 8 inches thick.

IIC—31 to 40 inches +, olive (5Y 4/3) silty clay loam; greenish-gray (5GY 6/1) ped faces; moderate, medium or thick, platy structure; firm; manganese stains on ped faces; evidence of thin discontinuous films of fine silt on all faces; slightly acid or neutral.

The Ap horizon has a color hue of 10YR, a value of 3 or 4, and a chroma of 2, 3, or 4. The B2 horizon has a texture of fine sandy loam or sandy loam. The color of this horizon has a hue of 2.5Y or 10YR, a value of 3 to 6, and a chroma of 4 to 6. The color of the A'2 horizon has a hue of 2.5Y or 5Y, a value of 4 to 6, and a chroma of 2 to 4. This horizon varies in thickness and is lacking in many places. The IIB horizon is silty clay loam, silty clay, or clay loam of weak or moderate structure. Clay films are observable in some root channels and pores. There are some thin clay films on the vertical faces of peds but generally none on the horizontal faces. The IIB and IIC horizons have colors that range in hue from 5Y to 2.5Y but are most commonly 5Y. The reaction is strongly acid to slightly acid in the solum and slightly acid or neutral in the underlying material. The depth to the underlying fine textured or moderately fine textured material ranges from 18 to 40 inches.

Elmwood soils are in the landscape with the well-drained Melrose and Suffield soils, the excessively drained Adams soils, and the poorly drained Swanton and Scantic soils.

Elmwood fine sandy loam, 2 to 8 percent slopes (EmB).—This soil is on the central lowlands along the Androscoggin River. The profile is the representative one described for the series. Included in mapping were a few small pockets of poorly drained soil and some areas that have loamy fine sand in the lower part of the solum.

This soil is strongly acid. Surface runoff is slow, and the available water capacity is high. Permeability is moderately rapid in the upper part and slow in the silty clay loam layers. The water table is at a depth of only 15 to 20 inches for part of the year.

This soil is suited to grass, legumes, and most vegetable crops.

Lime and fertilizer are needed. Beneficial practices include smoothing and grading, stabilization of the water table, careful selection of crop varieties, use of a good system of crop rotation that includes cover crops and green-manure crops, and utilization of crop residue. (Capability unit IIw–8; woodland group 4; wildlife group 2)

Elmwood fine sandy loam, 8 to 15 percent slopes, eroded (EmC2).—The profile of this soil is similar to the representative one described for the series, but the moderately coarse textured material is 18 to 24 inches thick and has mottles in the lowermost 2 to 6 inches. Included in mapping were a few areas that have less than 18 inches of fine sandy loam over silt and clay, some small areas that have slopes of more than 15 percent, and some small areas of loamy fine sand over a substratum of silt and clay.

Surface runoff is medium to rapid, and permeability is moderately rapid in the uppermost 20 inches and slow in the substratum. The available water capacity is high. Erosion is a major hazard where seepage water accumulates.

This soil is well suited to hay and pasture.

Lime and fertilizer are needed. Seepage spots can be developed as a source of water for livestock. Drain tile installed parallel to the line of seepage provides drainage and helps to control erosion. Productivity can be maintained by careful selection of crop varieties and a good system of crop rotation. (Capability unit IIIew–8; woodland group 4; wildlife group 1)

Hadley Series

The Hadley series consists of deep, well-drained, level or nearly level soils that formed in alluvial deposits of silt loam and very fine sandy loam along the Androscoggin River and the Kennebec River. Many areas of these soils are only a few feet above the level of the river, but they are seldom flooded.

A typical profile has a surface layer of dark-brown silt loam about 10 inches thick. The underlying material is light olive-brown silt loam. Beneath this, at a depth of about 17 inches, is olive-gray very fine sandy loam. These soils are friable throughout.

Representative profile of Hadley silt loam in the Abagadasset Point section of Bowdoinham, along Merrymeeting Bay.

Ap—0 to 10 inches, dark-brown (10YR 4/3) silt loam; moderate, fine, granular structure; friable; slightly acid; clear, smooth boundary. 8 to 12 inches thick.

B—10 to 17 inches, light olive-brown (2.5Y 5/4) silt loam; weak, fine, granular structure; friable; strongly acid; abrupt, smooth boundary. 1 inch to 16 inches thick.

C—17 to 40 inches, olive-gray (5Y 4/2) very fine sandy loam; massive; friable; strongly acid.

The Ap horizon ranges from dark brown (10YR 4/3) to very dark grayish brown (10YR 3/2) in color. The B horizon is light olive-brown (2.5Y 5/4), pale-olive (5Y 6/4), or olive-gray (5Y 4/2) silt loam and very fine sandy loam. Below a depth of 36 inches, the C horizon has a few, medium to coarse, prominent mottles of strong brown (7.5YR 5/8) and light olive gray (5Y 6/2). In many places it breaks into small weak clods. It contains a large amount of mica flakes and iron pyrite flakes. Coarse sand and gravel may occur at a depth of 4 to 5 feet.

Hadley silt loam (0 to 3 percent slopes) (Ha).—The profile of this soil is the representative one described for the series. Included in mapping were areas of moderately well drained soils on narrow escarpments and in small depressions and small areas of fine sandy loam and loamy fine sand.

Figure 9.—Truck farming on Hadley silt loam. Carrots are growing in the darker colored fields, and a late crop of parsnips is to be planted in the lighter colored field.

Surface runoff is slow, permeability is moderate, and the available water capacity is high. Flooding occurs early in spring about once in 5 years.

This soil is well suited to sweet corn, snap beans, potatoes, and other vegetables (fig. 9). It is also suited to intensive production of sudangrass, millet, alfalfa, orchard grass, and silage corn.

Lime and fertilizer are needed. Fertility can be increased by the use of a good system of crop rotation that includes winter cover crops and green-manure crops and by the utilization of crop residue. Irrigation is beneficial to crops about 2 years out of 3. (Capability unit I-6; woodland group 3; wildlife group 1)

Hartland Series

The Hartland series consists of deep, well-drained soils that formed in stratified lacustrine and marine sediments of very fine sandy loam and silt loam texture. Most of the acreage is in the southwestern part of Androscoggin County, but small spots are scattered through the entire two-county area.

Hartland soils typically have a 10-inch surface layer of dark-brown, friable very fine sandy loam and a subsoil of dark yellowish-brown, friable very fine sandy loam. Below this is olive-brown silt loam over light yellowish-brown very fine sandy loam extending to a depth of about 28 inches. The underlying material is light olive brown very fine sandy loam.

Representative profile of Hartland very fine sandy loam, 2 to 8 percent slopes, in the Soper Mill Brook section of Auburn, along State Route 136.

Ap—0 to 10 inches, dark-brown (10YR 3/3) very fine sandy loam; moderate, fine, granular structure; friable; many grass roots; medium acid; clear, smooth boundary. 8 to 11 inches thick.

B21—10 to 17 inches, dark yellowish-brown (10YR 4/4) very fine sandy loam; weak, fine, granular structure; friable; roots common; strongly acid; clear, smooth boundary. 6 to 8 inches thick.

IIB22—17 to 19 inches, olive-brown, (2.5Y 4/4) silt loam; moderate, fine, granular structure; friable; roots common; strongly acid; clear, smooth boundary. 1 inch to 3 inches thick.

IIIB3—19 to 28 inches, light yellowish-brown (2.5Y 6/4) very fine sandy loam and varves of silt loam ⅛ to ¼ inch thick; weak, fine, granular structure; friable; few roots; strongly acid; clear, smooth boundary. 8 to 10 inches thick.

IIIC—28 to 45 inches +, light olive-brown (2.5Y 5/4) very fine sandy loam and varves of silt loam ⅛ to ¼ inch thick; single grain; friable; strongly acid.

The A horizon is dark brown (10YR 3/3) or dark yellowish brown (10YR 4/4). The B21 horizon is dark yellowish brown (10YR 4/4), yellowish brown (10YR 5/4 or 5/6), and light yellowish brown (10YR 6/4), and the IIB horizon is olive brown (2.5Y 4/4) and light yellowish brown (2.5 6/4). The B and C horizons have layers of silt loam, fine sandy loam, and loamy very fine sand ranging from less than 1 inch to more than 6 inches in thickness. The C horizon ranges from light olive brown (2.5Y 5/4) to olive (5Y 5/3 or 4/4). Typically these soils have varves below a depth of 30 inches. Mottling is common at a depth of 45 to 60 inches in layers of very fine sand or silt loam.

Hartland soils are in the landscape with Belgrade, Suffield, and Agawam soils.

Hartland very fine sandy loam, 2 to 8 percent slopes (HfB).—The profile of this soil is the representative one described for the series. Included in mapping were a few small areas of moderately well drained Belgrade soils.

Surface runoff is medium, permeability is moderate or moderately slow, and the available water capacity is high. Frost heave is a severe hazard. Erosion is a hazard in unprotected areas.

This soil is well suited to strawberries, potatoes, sweet corn, snap beans, and other vegetables. It is also suited to grass, silage corn, legumes, and other feed crops. It is ideal for home gardens.

Lime and fertilizer are needed. Field strips should be used in cultivated areas. Contour stripcropping is generally not practical, because the slopes are short and irregular. Fertility can be maintained by using a good system of crop rotation that includes winter cover crops and green-manure crops and by utilization of crop residue. (Capability unit IIe–7; woodland group 3; wildlife group 1)

Hartland very fine sandy loam, 8 to 15 percent slopes, eroded (HfC2).—The profile of this soil is similar to the representative one described for the series, but the dark-brown surface layer is 3 to 5 inches thinner and the B21 horizon is 2 to 4 inches thinner. Included in mapping were some small pockets of moderately well drained soil, including springs, and small areas that are severely eroded.

Surface runoff is medium to rapid, permeability is moderate or moderately slow, and the available water capacity is high. Erosion is a severe hazard.

This soil is well suited to grass, legumes, and other field crops. It can be cultivated if runoff and erosion are controlled.

Lime and fertilizer are needed. Other practices needed include careful selection of crop varieties, the use of a good system of crop rotation that includes green-manure crops and winter cover crops, and utilization of crop residue. Occasionally, irrigation is beneficial to shallow-rooted crops. (Capability unit IIIe–7; woodland group 3; wildlife group 1)

Hartland very fine sandy loam, 15 to 25 percent slopes, eroded (HfD2).—This soil has short, irregular slopes. The profile is similar to the representative one described for the series, but the surface layer is 4 to 6 inches thinner and the B21 horizon is 2 to 4 inches thinner. Included in mapping were a few areas that have slopes of more than 25 percent.

Surface runoff is rapid, permeability is moderate or moderately slow, and the available water capacity is high. The erosion hazard is severe, especially if the natural vegetation is removed or the soil disturbed.

This soil can be used for pasture or hay, and some areas are in pasture. Most areas, however, are wooded. The slope restricts the use of farm machinery. Pastures and meadows need to be limed, fertilized, and seeded with suitable mixtures. (Capability unit IVe–7; woodland group 3; wildlife group 10)

Hinckley Series

The Hinckley series consists of deep, excessively drained, gravelly soils that formed in coarse-textured glacial outwash. These soils occur on the narrow "horseBacks," or eskers, along the Androscoggin River and on the outwash kame south of Androscoggin Lake in the town of Leeds.

Hinckley soils typically have a thin surface layer of very dark grayish-brown gravelly sandy loam and a subsoil of gravelly loamy sand that is strong brown beginning at a depth of about 4 inches and yellowish brown beginning at a depth of about 12 inches. The underlying material, at a depth of about 20 inches, is sand and gravel that is stratified in many places.

Representative profile of Hinckley gravelly sandy loam, 0 to 8 percent slopes, in an old gravel pit in the south end of the town of Turner, on the west side of State Route 4.

A1—0 to 4 inches, very dark grayish-brown (10YR 3/2) gravelly sandy loam; weak, fine, granular structure; friable; many roots; about 15 percent gravel; very strongly acid; clear, smooth boundary. 3 to 5 inches thick.

B21—4 to 12 inches, strong-brown (7.5YR 5/6) gravelly loamy sand; weak, fine, granular structure; loose; many roots; about 20 percent gravel; very strongly acid; clear, wavy boundary. 4 to 9 inches thick.

B22—12 to 20 inches, yellowish-brown (10YR 5/4) gravelly loamy sand; single grain; loose; roots common; about 25 percent gravel; very strongly acid; clear, wavy boundary. 7 to 12 inches thick.

C1—20 to 32 inches, light yellowish-brown (2.5Y 6/4) sand and gravel; single grain; loose; roots common; about 60 percent gravel; very strongly acid; clear, wavy boundary. 7 to 9 inches thick.

IIC2—32 to 44 inches, grayish-brown (2.5Y 5/2) sand; single grain; loose; few roots; about 5 percent gravel; very strongly acid. Beneath this horizon are alternating layers of sand and gravel.

The A horizon ranges from very dark grayish brown (10YR 3/2) to dark yellowish brown (10YR 4/4) in color. Its structure is fine or medium, granular. The B21 horizon ranges from dark brown (7.5YR 4/4) to dark yellowish brown (10YR 4/4) in color and from gravelly sandy loam to gravelly loamy sand in texture. Its structure is fine or medium, granular. The B22 horizon ranges from dark brown (7.5YR 4/4) to yellowish brown (10YR 5/4) in color and from gravelly loamy sand to coarse sand or gravelly sand in texture. In some places a B3 horizon is present that ranges from light yellowish brown (2.5Y 6/4) to light olive brown (2.5Y 5/4 or 5/6) in color. The C horizon consists of alternating layers of sand and gravel ranging from 1 inch to more than 2 feet in thickness. The color of the C and IIC horizons ranges from light yellowish-brown (2.5Y 6/4) and olive brown 2.5Y 4/4) to grayish brown (2.5Y 5/2). The content of coarse fragments in the B and C horizons ranges from 15 to more than 80 percent. The depth to sand and gravel ranges from 10 to 24 inches.

Hinckley soils are in the landscape with Adams, Merrimac, and Agawam soils.

Hinckley gravelly sandy loam, 0 to 8 percent slopes (HkB).—This soil is on terraces and outwash plains. It has the profile described as representative for the series. In-

cluded in mapping were small areas in depressions where the water table is within 30 inches of the surface, small areas of loamy sand 30 to 40 inches thick over gravel, and small areas that have a 30- to 36-inch solum over stratified sand and gravel.

This soil is strongly acid and very low in natural fertility. It is also droughty. Surface runoff is slow, permeability is very rapid, and the available water capacity is very low.

This soil is better suited to deep-rooted grass and legumes than to row crops. Large amounts of fertilizer are needed. Irrigation is practical only for small areas that are worked with better soils. Practices that control runoff and make more water available to plants are needed. Fertilizer leaches out readily. (Capability unit IIIs–5; woodland group 1; wildlife group 5)

Hinckley gravelly sandy loam, 8 to 15 percent slopes (HkC).—This soil is on the sides of terraces and on rough rolling parts of outwash plains where kettle holes are prominent. The texture of the surface layer is somewhat coarser and more gravelly than that of the surface layer in the representative profile for this series, the B21 horizon is only 4 to 6 inches thick, the B22 horizon is only 3 to 5 inches thick, and the depth to gravel only 11 to 15 inches. Included in mapping were some small areas of gravel-free loamy sand, a few small pockets of moderately well drained soil, and small areas that have steeper slopes.

This soil is strongly acid or very strongly acid and is low in natural fertility. Surface runoff is slow, permeability and infiltration are very rapid, and the available water capacity is very low.

This soil is poorly suited to grass and legumes. Most of the steeper areas are either idle or wooded. The response to lime and fertilizer is poor. The use of farm machinery is hazardous because of the slope. (Capability unit IVs–5; woodland group 1; wildlife group 5)

Hinckley gravelly sandy loam, 15 to 25 percent slopes (HkD).—This soil is on the sides of eskers and terraces. The profile is similar to the representative one described for the series, but the surface layer is gravelly loamy sand in many places and contains a large amount of coarse sand as well as gravel. Also, the gravel content in the B horizon is generally 40 to 80 percent, and the depth to the layer of sand and gravel is only 10 to 13 inches. Included in mapping were small areas of similar soils that have slopes of more than 25 percent.

This soil is strongly acid or very strongly acid and is low in natural fertility. Surface runoff is slow, and infiltration and permeability are very rapid. The available water capacity is very low because of the coarse texture and the thin solum.

This soil is suited only to deep-rooted, drought-resistant plants. The main limitations are droughtiness and steepness. Fertilizer leaches out readily. (Capability unit VIs–5; woodland group 1; wildlife group 8)

Hollis Series

The Hollis series consists of well-drained, shallow soils that formed in glacial till. These soils are widely distributed throughout the two-county area.

Hollis soils in woodland areas typically have a thin mat of organic material over a thin surface layer of very dark brown fine sandy loam. The subsoil is dark yellowish-brown fine sandy loam in the upper part and yellowish-brown sandy loam in the lower part. The depth to bedrock is about 18 inches.

Representative profile of Hollis fine sandy loam, 0 to 8 percent slopes, in a road cut on the crossroad one-half mile north of Minot.

O1—2 inches to 1 inch, moss and leaves (hardwood).
O2—1 inch to 0, partly decomposed leaves, twigs, and grass. Trace to 2 inches thick.
A1—0 to 2 inches, very dark brown (10YR 2/2) fine sandy loam; weak, fine, granular structure; friable; many roots; about 5 percent coarse fragments more than 2 millimeters in diameter; very strongly acid; clear, wavy boundary. 1 inch to 5 inches thick.
B21—2 to 12 inches, dark yellowish-brown (10YR 4/4) fine sandy loam; weak, fine, granular structure; friable; many roots; about 10 percent coarse fragments more than 2 millimeters in diameter; strongly acid; clear, wavy boundary. 4 to 10 inches thick.
B22—12 to 18 inches, yellowish-brown (10YR 5/6) sandy loam; weak, medium, granular structure; friable; root concentration at the bottom along the bedrock; about 10 percent coarse fragments more than 2 millimeters in diameter; strongly acid; abrupt, wavy boundary. 2 to 7 inches thick.
R—18 inches +, an uneven surface of shattered mica schist, phyllite, and granite bedrock. Tree roots extend into cracks in the rock.

The A horizon ranges from very dark brown (10YR 2/2) to brown (10YR 4/3) in color. The B21 horizon ranges from dark brown (7.5YR 4/4) to dark yellowish brown (10YR 4/4) in color. In texture it ranges from fine sandy loam to loam but is dominantly fine sandy loam. A thin B3 horizon that is light yellowish brown (2.5Y 6/4) or light olive brown (2.5Y 5/4 or 5/6) is present in a few places. The structure of the solum ranges from weak to moderate in grade and from fine to medium in class. The content of coarse fragments ranges from less than 10 percent to more than 50 percent. The depth to bedrock ranges from 10 to 20 inches.

Hollis fine sandy loam, 0 to 8 percent slopes (HrB).—This soil has very irregular topography because the underlying bedrock is uneven. Bedrock crops out in a few places. The profile is the representative one described for the series. In cultivated areas the Ap horizon is generally 7 to 9 inches thick. Included in mapping were small areas of bedrock outcrops and small wet pockets.

This soil is slightly acid to strongly acid. Natural fertility is low. Surface runoff is slow or medium, and permeability is moderate. The available water capacity per inch of soil is moderate, but the total amount of water available ranges from very low to moderately high, depending on the depth of the soil.

This soil is well suited to shallow-rooted grass and the common legumes. Areas that have good air drainage can be used for apple orchards. The trees should be lined up and spaced so as to take advantage of the pockets of deeper soil. Shallow spots and outcrops of bedrock make cultivation inconvenient. Fertility can be increased by applying manure, commercial fertilizer, and lime; using a good system of crop rotation that includes green-manure crops and winter cover crops; and utilizing the crop residue. (Capability unit IIIe–1; woodland group 2; wildlife group 6)

Hollis fine sandy loam, 8 to 15 percent slopes (HrC).—Less than 2 percent of the surface of this soil is covered by outcrops of bedrock. The outcrops are 100 to 300 feet apart. The profile is similar to the representative one described for the series, but the depth to bedrock is less than 6 inches in some areas. Included in mapping were

some small wet spots, small pockets of deeper soil, and small areas of less steep soil and steeper soil.

This soil is strongly acid. The natural fertility is low. Surface runoff is medium, and permeability is moderate. The available water capacity is moderate, but the amount of water available to plants in the very shallow places is small.

Most of this soil is wooded. Some cleared areas are used for hay and pasture, and a few are used for native lowbush blueberries. Lime and fertilizer are needed. Productivity can be improved by careful selection of crop varieties and the use of a good system of crop rotation. (Capability unit IVe–1; woodland group 2; wildlife group 6)

Hollis fine sandy loam, 15 to 45 percent slopes (HrD).—The profile of this soil is similar to the representative one described for the series, but the depth to bedrock is only 10 to 14 inches, except in small pockets, and outcrops of bedrock are somewhat more numerous. Outcrops and other areas where the soil is less than 6 inches thick over bedrock make up less than 2 percent of the acreage. Included in mapping were small pockets and benches of deep, well drained and moderately well drained soils and seep spots.

This soil is strongly acid. Natural fertility is low. Surface runoff is rapid, permeability is moderate, and the available water capacity is low.

Most of this soil is wooded, but many small areas, now idle, are covered with weeds and bushes. A few small and a few irregularly shaped areas are pastured. Pastures that have been limed and fertilized and seeded with a suitable mixture are good early in summer, but they decline late in summer because of the shortage of available moisture. (Capability unit Ve–1; woodland group 2; wildlife group 8)

Hollis very rocky fine sandy loam, 0 to 8 percent slopes (HsB).—This soil occurs in coastal areas. The profile is similar to the representative one described for the series, but there are more rock outcrops and the depth to bedrock is commonly between 14 and 16 inches. Outcrops and other areas where the soil is less than 10 inches thick are 30 to 100 feet apart and cover 2 to 25 percent of the acreage. Included in mapping were small pockets of deep, well-drained soil; small pockets of deep, moderately well drained and poorly drained soil; and small pockets of shallow, moderately well drained and poorly drained soil.

This soil is strongly acid. Natural fertility is very low. Surface runoff is medium, permeability is moderate, and the available water capacity is low.

This soil is suitable for limited use as pasture (fig. 10).

Figure 10.—Pasture on Hollis very rocky fine sandy loam, 0 to 8 percent slopes. Bushes surround the outcrops of bedrock.

Ground juniper, gray birch, and scrub pine are growing in most old pastures. White pine and northern hardwoods make up the common woodland cover. Moisture received as ocean spray makes possible the growth of mixed stands of white pine, hemlock, spruce, and fir in the pockets of deeper soil. Pastures need lime and fertilizer. (Capability unit VIs–1; woodland group 7; wildlife group 8)

Hollis very rocky fine sandy loam, 8 to 15 percent slopes (HsC).—This soil has outcrops of bedrock 30 to 100 feet apart. The outcrops and other areas where the soil is less than 6 inches thick make up 2 to 25 percent of the acreage. The profile is similar to the representative one described for the series, but it ranges from only 10 to 15 inches in depth and commonly is only 12 to 14 inches deep. Included in mapping were small deep pockets and small shallow pockets of moderately well drained or poorly drained soils.

This soil is strongly acid. Natural fertility is very low. Surface runoff is rapid, permeability is moderate, and the available water capacity is low.

This soil is suitable for limited use as pasture. Ground juniper, gray birch, and scrub pine are growing in most old pastures. The common woodland cover consists of white pine and northern hardwoods. Pastures need lime and fertilizer. (Capability unit VIs–1; woodland group 7; wildlife group 8)

Hollis very rocky fine sandy loam, 15 to 45 percent slopes (HsD).—This soil is in coastal areas where moisture from the ocean is received in the form of fog and spray. Outcrops of bedrock are 30 to 100 feet apart. The outcrops and other areas where the soil is less than 6 inches thick make up 2 to 25 percent of the acreage. The profile is similar to the representative one described for the series, but it commonly is only 10 to 12 inches deep. Included in mapping were areas of loamy sand and loam and pockets where the soil is deep and there are springs.

Surface runoff is rapid, permeability is moderate, and the available water capacity is low.

This soil is suitable for limited use as pasture. Ground juniper, gray birch, and scrub pine are growing in most of the old pastures. The common woodland cover consists of white pine and northern hardwoods. The extra moisture received from the ocean helps to maintain tree growth. Pastures need lime and fertilizer. (Capability unit VIs–1; woodland group 7; wildlife group 8)

Leicester Series

The Leicester series consists of deep, poorly drained soils that formed in sandy loam glacial till. These soils occur along upland drainageways and in the bottom of depressions. The water table is within 12 inches of the surface about half the year.

Typically, Leicester soils have a 3-inch surface layer of very dark gray, friable fine sandy loam over a thin layer of gray, friable fine sandy loam mottled with greenish gray and dark brown. The subsoil, between a depth of 7 and 24 inches, is olive-gray, friable or firm sandy loam or fine sandy loam mottled with light gray and shades of brown. The underlying material is dark-gray sandy loam. Coarse fragments occur throughout the profile.

Representative profile of Leicester fine sandy loam along road between West Auburn and North Auburn.

A1—0 to 3 inches, fine sandy loam, very dark gray (10YR 3/1) when moist and light brownish gray (10YR 6/2) when dry; moderate, medium, granular structure; friable; many roots; about 5 percent coarse fragments more than 2 millimeters in diameter; strongly acid; clear, smooth boundary. 2 to 4 inches thick.

A2g—3 to 7 inches, gray (10YR 5/1) fine sandy loam; common, medium, prominent mottles of greenish gray (5GY 5/1) and dark brown (7.5YR 4/4); weak, fine, granular structure; friable; nonsticky when wet; many roots; about 5 percent coarse fragments more than 2 millimeters in diameter; strongly acid; clear, smooth boundary. 2 to 6 inches thick.

B21g—7 to 13 inches, olive-gray (5Y 5/2) fine sandy loam; many, coarse, prominent mottles of yellowish brown (10YR 5/6) and light gray (5Y 7/1); weak, coarse, granular structure; friable; few roots; about 15 percent coarse fragments more than 2 millimeters in diameter; strongly acid; clear, wavy boundary. 5 to 10 inches thick.

B22g—13 to 24 inches, olive-gray (5Y 4/2) sandy loam; many, coarse, prominent mottles of dark brown (7.5YR 4/4) and light gray (5Y 7/1); weak, thick, platy structure; firm; about 30 percent coarse fragments more than 2 millimeters in diameter; strongly acid; clear, wavy boundary. 8 to 15 inches thick.

Cg—24 to 40 inches +, dark-gray (5Y 4/1) sandy loam; common, coarse, prominent mottles of yellowish brown (10YR 5/6) and light gray (5Y 7/1); weak, coarse, prismatic structure breaking to weak, thick, platy; firm; about 30 percent coarse fragments more than 2 millimeters in diameter; strongly acid.

The A1 horizon is very dark gray (10YR 3/1) or black (10YR 2/1) when wet and generally is friable or very friable when moist and slightly sticky or nonsticky when wet. It has weak to strong, fine or medium, granular structure. The A1 horizon ranges from 2 to 4 inches in thickness, and the Ap horizon, where it occurs, from 6 to 8 inches. The B horizon ranges from olive gray (5Y 5/2 to 4/2) to gray (5Y 5/1) or dark gray (5Y 4/1) in color and has prominent mottles ranging from fine to coarse in size and from dark brown (7.5YR 4/4) to light gray (5Y 7/1) or greenish gray (5GY 5/1) in color. The solum is 18 to 30 inches thick. The C horizon ranges from olive gray (5Y 4/2) to dark-gray (5Y 4/1) in matrix color. It contains prominent mottles that range from dark brown (7.5YR 4/4) to light gray (5Y 7/1). The content of coarse fragments in the profile ranges from 5 to 50 percent. Most of the fragments are of granite or of schistose material. The depth to bedrock ranges from 4 to 20 feet.

Leicester fine sandy loam (0 to 3 percent slopes) (Lc).—This soil occurs in broad depressions and at the base of slopes. The profile is the representative one described for the series. Included with this soil in mapping were a few areas of a soil that has a firm fragipan at a depth of 18 to 24 inches.

Surface runoff is slow to ponded, permeability is moderate to rapid, and the available water capacity is high.

This soil is cold and wet in spring; consequently, crops are slow to start growing. Only plants that can tolerate a saturated soil for periods of several weeks are suitable. Grass, for hay or pasture, is the principal crop, but cultivated crops are grown occasionally. Some areas have been drained so that adjoining soils that have better natural drainage can be farmed more conveniently.

Lime and fertilizer are needed. Drainage can be improved by means of field ditches and by land smoothing. Other management needs include careful selection of crop varieties and a good system of crop rotation. (Capability unit IIIw–3; woodland group 5; wildlife group 3)

Leicester very stony fine sandy loam (0 to 8 percent slopes) (le).—This soil has enough large stones on the surface and in the profile to make cultivation impractical. Otherwise, the profile is like the representative profile described. Included with this soil in mapping were small areas of Whitman soils, which are very poorly drained.

Surface runoff is slow to ponded, permeability is moderate to rapid, and the available water capacity is high.

Stoniness and a high water table limit the use of this soil largely to forest and wildlife habitat. A few areas are rough pasture. The stones make it difficult to set tile for drainage. Fertilizer is leached out rapidly. (Capability unit VIIs-w-3; woodland group 5; wildlife group 11)

Limerick Series

The Limerick series consists of poorly drained soils. These soils are on bottom lands, mostly along the Sabattus River and the Cathance River but also in smaller areas along other streams and rivers.

Limerick soils typically have a 10-inch surface layer of dark-gray silt loam. The underlying material is gray, mottled silt loam that extends to a depth of 48 inches.

Representative profile of Limerick silt loam along the Cathance River, 2 miles south of Bowdoin Center.

Ap—0 to 10 inches, silt loam, dark gray (10YR 4/1) when moist and light gray (10YR 6/1) when dry; moderate, fine, granular structure; friable; medium acid; clear, smooth boundary. 8 to 11 inches thick.

B1g—10 to 18 inches, gray (5Y 6/1) silt loam; many, coarse, distinct mottles of olive (5Y 5/6) and olive gray (5Y 4/2); weak, fine, granular structure; friable; medium acid; gradual, smooth boundary. 6 to 10 inches thick.

Cg—18 to 18 inches, gray (5Y 6/1) silt loam; many, coarse, prominent mottles of olive gray (5Y 4/2), dark brown (7.5YR 4/4), yellowish brown (10YR 5/6), and yellowish red (5YR 4/6); massive; medium acid.

The A horizon ranges from silt loam to very fine sandy loam in texture but is dominantly silt loam. Its color is dominantly dark gray (10YR 4/1) or gray (10YR 6/1). The B horizon, to a depth of 2 feet, ranges from silt loam to very fine sandy loam but is dominantly silt loam. It has a color hue of 5Y in most places and 2.5Y in a few places, a value of 3 to 6, and a chroma of 1. Most of the mottles in the B and C horizons are olive gray, brown, yellowish brown, reddish brown, and yellowish red, but a few prominent ones are bluish gray and greenish gray. The C horizon, at a depth of 2 feet or more, is silt loam or fine sandy loam with scattered pockets of coarse sand or gravel.

Limerick soils are closely associated with the well drained Hadley soils and the moderately well drained Winooski soils.

Limerick silt loam (0 to 3 percent slopes) (lk).—This soil is level to nearly level and has many slight depressions. It is flooded when heavy showers or sudden thaws occur in fall, winter, and spring but is seldom flooded in the growing season. The water table is near the surface from late in fall to early in spring. The profile is the representative one described for the series. Included in mapping were small areas of sandy loam and fine sandy loam.

This soil is medium acid. Fertility is moderately low. Surface runoff is slow to ponded, permeability is moderate, and the available water capacity is high.

This soil is suited only to plants that can tolerate saturated soil for several weeks. Most areas are used for pasture, hay, and green chop. Occasionally a crop of silage corn is grown between seedings.

Lime and fertilizer are needed. Management needs include careful selection of seed varieties, drainage by means of field ditches (fig. 11), and land smoothing between the ditches. (Capability unit IIIw-6; woodland group 5; wildlife group 9)

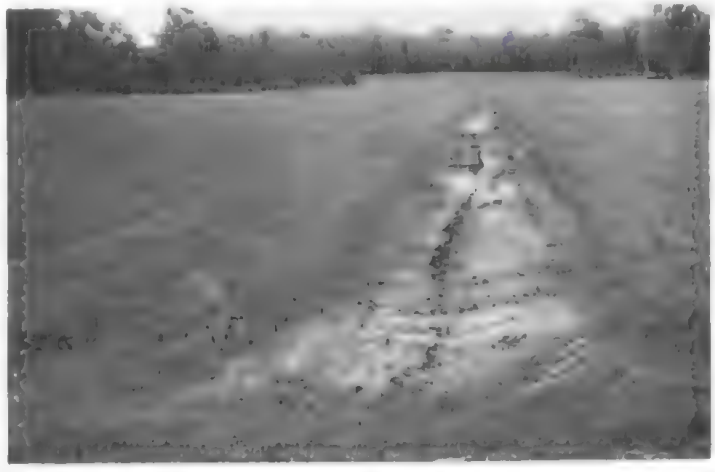

Figure 11.—Field of Limerick silt loam. In the foreground, a field ditch that prevents ponding; in the background, an area that has been smoothed to fill in depressions.

Made Land

Made land consists of areas that have been either cut or filled so extensively that the characteristics of the original soil have been destroyed. The fill generally consists of industrial wastes or city refuse covered with soil material. Some typical industrial wastes used for fill are sawdust, shavings, tree bark, leather trimmings, wool and cotton fibers, synthetic fibers, and coal cinders from mills and factories.

Made land, loamy materials (Md) consists of some areas where the original land surface has been cut extensively and other areas where valleys have been filled. The material exposed in the cuts is mainly substratum soil material, and the fill consists mainly of a mixture of material from several soils. This land is not suitable for agricultural use, and onsite investigation is needed before it is used for any purpose. (Not placed in a capability unit; woodland group 8; wildlife group 13)

Made land, sanitary fill (Mf) consists of areas that have been filled with waste material covered with soil material. Most of these areas are used for disposal of industrial waste, but some are used for public garbage disposal. This land is not suitable for agricultural use, and an onsite investigation is required before it can be used for any purpose. (Not placed in a capability unit; woodland group 8; wildlife group 13)

Melrose Series

The Melrose series consists of deep, well-drained soils that formed in moderately coarse textured material over moderately fine and fine textured material. These soils are on plains in the central part of Androscoggin County.

Melrose soils in cultivated areas typically have a plow layer of dark-brown, friable fine sandy loam about 9 inches thick. The subsoil is fine sandy loam that is yel-

lowish brown in the upper part and light yellowish brown in the lower part. The underlying material is olive silty clay loam at a depth of about 24 inches. This material is only slightly weathered.

Representative profile of Melrose fine sandy loam in a cultivated area along the south end of Davis Road, in the southwestern part of the town of Durham.

Ap—0 to 9 inches, dark-brown (10YR 3/3) fine sandy loam; moderate, medium or fine, granular structure; friable; many roots; medium acid; abrupt, smooth boundary. 7 to 10 inches thick.

B2—9 to 20 inches, yellowish-brown (10YR 5/6) fine sandy loam; weak, fine, granular structure; friable; roots common; medium acid; clear, smooth boundary. 8 to 14 inches thick.

B3—20 to 24 inches, light yellowish-brown (2.5Y 6/4) fine sandy loam; moderate, medium, granular structure; friable; few roots; medium acid; abrupt, smooth boundary. 3 to 8 inches thick.

IIC1—24 to 36 inches, silty clay loam; olive (5Y 5/3) ped interiors and olive-gray (5Y 5/2) on ped faces; moderate, fine, subangular blocky structure; firm when moist, plastic when wet; medium acid; gradual, smooth boundary. 8 to 16 inches thick.

IIC2—36 to 42 inches +, silty clay loam; olive (5Y 4/3) ped interiors and olive-gray (5Y 5/2) ped faces; weak, coarse, prismatic structure breaking to moderate, medium or coarse, subangular blocky; firm in place when moist, plastic when wet; dark-brown and black stains (manganese) on ped faces and fine black specks in ped interiors; medium acid.

The surface layer has colors that are mostly 10YR in hue, 2 or 3 in value, and 2 to 4 in chroma. Gravel is not common but occurs in areas adjacent to gravelly outwash. The B2 horizon ranges from fine sandy loam to coarse sandy loam in texture. It has colors ranging from 2.5Y to 7.5YR in hue, from 3 to 5 in value, and from 3 to 8 in chroma. In some profiles there is an A'2 horizon, and in some a B22 horizon that is similar to the B2 but paler in color. A B3 horizon is present in most places and commonly is fine sandy loam, loamy fine sand, or loamy sand. The IIC horizon is sandy clay loam, silty clay loam, sandy clay, or silty clay. It ranges from 5Y to 10YR in hue, from 4 to 6 in value, and from 1 to 3 in chroma. Depth to the underlying material ranges from 18 to 40 inches. The solum is strongly acid or medium acid, and the substratum is strongly acid to neutral and may be calcareous in the lower part.

Melrose soils are in the landscape with Suffield and Adams soils.

Melrose fine sandy loam, 0 to 8 percent slopes (MeB).—This soil occurs generally as small areas that are associated with the moderately well drained Elmwood and Ninigret soils or the excessively drained Adams soils. The profile is the representative one described for the series. Included in mapping some of the nearly level areas were small areas of moderately well drained soils.

Surface runoff is slow. Permeability is moderately rapid in the surface layer and subsoil and moderately slow in the substratum. The available water capacity is high.

This soil is especially well suited to alfalfa, orchardgrass, and other deep-rooted crops. It is also well suited to other grasses and legumes and to the crops commonly grown in the area. Nearly all the soil is cropped.

The main limitation is the hazard of erosion. A suitable system of crop rotation is the most usual means of erosion control. Irrigation is feasible. (Capability unit IIe–8; woodland group 3; wildlife group 1)

Melrose fine sandy loam, 8 to 20 percent slopes (MeC).—This soil is characterized by irregular slopes that are generally less than 200 feet long. The profile is similar to the representative one described for the series, but the solum is 18 to 30 inches thick. Included in mapping were a few pockets of moderately well drained soil.

Surface runoff is medium. Permeability is moderately rapid in the surface layer and subsoil and moderately slow in the substratum. The available water capacity is high.

This soil is well suited to grass and legumes. It is also well suited to most cultivated crops if runoff is controlled. Most of it is used for grassland and for cultivated crops.

Lime and fertilizer are needed. Productivity can be improved by careful selection of crop varieties, by a good system of crop rotation that includes green-manure crops and winter cover crops, and by use of crop residue. Irrigation is beneficial to crops 2 years out of 3. (Capability unit IIIe–8; woodland group 3; wildlife group 1)

Merrimac Series

The Merrimac series consists of deep, well-drained soils that formed in stratified sand and gravel on kames and in outwash areas. These soils are mostly on stream terraces at the junction of the Androscoggin River and its tributaries.

Merrimac soils typically have a 9-inch surface layer of dark yellowish-brown, friable fine sandy loam and a subsoil of yellowish-brown or brown, friable fine sandy loam. Below a depth of 22 inches are layers of sand and gravel.

Representative profile of Merrimac fine sandy loam (fig. 12) on the south edge of the town of Turner, west of State Route 4.

Ap—0 to 9 inches, dark yellowish-brown (10YR 4/4) fine sandy loam; moderate, fine, granular structure; friable; many grass roots; strongly acid; clear, smooth boundary.

B21—9 to 11 inches; yellowish-brown (10YR 5/6) fine sandy loam; moderate, fine, granular structure; friable; many roots; strongly acid; clear, wavy boundary. 2 to 6 inches thick.

B22—11 to 22 inches, brown (10YR 5/3) fine sandy loam; weak, fine, granular structure; friable; roots common; no gravel; strongly acid; abrupt, smooth boundary. 7 to 12 inches thick.

IIC1—22 to 28 inches, light olive-brown (2.5Y 5/4) gravelly sand; single grain; loose; few roots; about 30 percent gravel; strongly acid; clear, wavy boundary. 6 to 20 inches thick.

IIIC2—28 to 48 inches +, grayish-brown (2.5Y 5/2) stratified sand and gravel; single grain; loose; strongly acid.

The A horizon ranges from dark yellowish brown (10YR 4/4) to dark brown (10YR 3/3) in color. The texture of the B horizon is fine sandy loam or sandy loam. The B21 horizon is yellowish brown (10YR 5/4 or 5/6) or dark yellowish brown (10YR 4/4), and the B22 horizon ranges from brown (10YR 5/3) to light yellowish brown (2.5Y 6/4). The granular structure of the A and B horizons ranges from moderate to weak in grade and is medium or fine in class. The solum is 18 to 24 inches thick. The IIC1 and IIIC2 horizons range from loamy sand to stratified sand and gravel in texture. The gravel content of these horizons ranges from 30 to 75 percent. The IIC1 horizon is grayish brown (2.5Y 5/2), light olive brown (2.5Y 5/4), and olive brown (2.5Y 4/4). The coarse fraction of the IIIC2 horizon is made up mainly of granite, schist, and feldspar.

Some of the gently sloping and moderately steep Merrimac soils are in the landscape with Hinckley and Adams soils.

Merrimac fine sandy loam, 0 to 8 percent slopes (MkB).—Most areas of this soil are on high terraces along the Androscoggin River and in the towns of Livermore,

Livermore Falls, Leeds, and Turner. The profile is the representative one described for the series. Included in mapping were a few areas of coarse sandy loam and loamy sand that are free of gravel to a depth of more than 40 inches and a few areas in which the solum is as much as 10 percent gravel.

Surface runoff is slow, permeability is moderately rapid, and the available water capacity is low to moderate.

This soil is well suited to deep-rooted grasses and legumes, for example orchardgrass and alfalfa. Most areas are used for snap beans (fig. 13), silage corn, hay, and pasture. Large and frequent applications of lime and fertilizer are needed. Cultivated crops need irrigation. Productivity can be improved by using a good system of crop rotation that includes green-manure crops and winter cover crops and by utilizing crop residue. (Capability unit IIs–5; woodland group 1; wildlife group 1)

Merrimac fine sandy loam, 8 to 15 percent slopes, eroded (MkC2).—The profile of this soil is similar to the representative one described for the series, but the surface layer is only 4 to 6 inches thick. Included in mapping were a few areas where the solum is loamy sand, the substratum is loamy coarse sand, and the gravel content is less than 30 percent.

Surface runoff is medium, permeability is moderately rapid, and the available water capacity is moderate to low.

This soil is well suited to deep-rooted grasses and legumes but is poorly suited to shallow-rooted crops. Lime and fertilizer are needed. Productivity can be improved by careful selection of crop varieties, the use of a good system of crop rotation that includes green-manure crops and cover crops, and the utilization of crop residue. Control of runoff reduces the hazard of erosion and of leaching. (Capability unit IIIes–5; woodland group 1; wildlife group 1)

Merrimac fine sandy loam, 15 to 25 percent slopes, eroded (MkD2).—This soil is characterized by short, irregular slopes. The profile is similar to the representative one described for the series, but the surface layer is only 4 to 6 inches thick and the depth to the C horizon, or gravel, is only 18 to 20 inches. Included in mapping were small areas of very gravelly soil.

Surface runoff is medium, permeability is moderately rapid, and the available water capacity is low.

This soil is suited to deep-rooted grasses and legumes. Lime and fertilizer are needed. Productivity can be improved by controlling runoff and making more water available to plants. The slope restricts the use of farm machinery. (Capability unit IVes–5; woodland group 1; wildlife group 10)

Ninigret Series

The Ninigret series consists of deep, moderately well drained, nearly level or gently sloping soils. These soils are on outwash terraces and sand plains, mostly along the Androscoggin River and its tributaries.

Ninigret soils in wooded areas typically have a thin mat of organic materials over an 8-inch surface layer of very dark grayish-brown fine sandy loam over olive-gray loamy fine sand. The subsoil is dark yellowish-brown fine sandy loam in the upper part and yellowish-brown, mottled loamy fine sand in the lower part. The underlying material, at a depth of about 28 inches, is light olive brown loamy fine sand mottled with yellowish brown and light olive gray.

Figure 12.—Profile of Merrimac fine sandy loam, showing the thickness of fine sandy loam over stratified gravel and sand.

Representative profile of Ninigret fine sandy loam along the Moody Road, south of the village of Lisbon.

O2—3 inches to 0, partly decomposed mat of pine needles and twigs.

A1—0 to 6 inches, very dark grayish-brown (10YR 3/2) fine sandy loam; weak, medium, granular structure; friable; many roots; strongly acid; clear, wavy boundary. 5 to 8 inches thick.

A2—6 to 8 inches, olive-gray (5Y 5/2) loamy fine sand; weak, fine, granular structure; friable; many roots; strongly acid; clear, broken boundary. 0 to 3 inches thick.

B21—8 to 17 inches, dark yellowish-brown (10YR 4/4) fine sandy loam; weak, medium, granular structure; friable; roots common; strongly acid; clear, wavy boundary. 7 to 12 inches thick.

B22—17 to 28 inches, yellowish-brown (10YR 5/8) loamy fine sand; common, medium, distinct mottles of dark yellowish brown (10YR 4/4) and light brownish gray (10YR 6/2); single grain; very friable; strongly acid; clear, smooth boundary. 8 to 12 inches thick.

Figure 13.—Snap beans on Merrimac fine sandy loam, 0 to 8 percent slopes. At the left, part of the irrigation system.

C 28 to 40 inches, light olive-brown (2.5Y 5/4) loamy fine sand; common, coarse, distinct mottles of yellowish brown (10YR 5/4) and light olive gray (5Y 6/2); single grain; very friable; strongly acid.

The color of the A1 horizon ranges from very dark grayish brown (10YR 3/2) to dark brown (10YR 3/3), and in cultivated areas that of the Ap horizon is about 1 unit of value higher. The B horizon ranges from fine sandy loam to loamy fine sand in texture. The B21 horizon is dark yellowish brown (10YR 4/4) to strong brown (7.5YR 5/8), and the B22 horizon is yellowish brown (10YR 5/4 to 5/8). The C horizon is light yellowish brown (2.5Y 6/4) to light olive brown (2.5Y 5/4 or 5/6) loamy fine sand to fine sand. The depth to mottling ranges from 14 to 20 inches. The mottles are few or common in number and distinct or prominent in contrast. The solum ranges from 24 to 40 inches in thickness but is commonly about 30 inches thick. The profile is generally free of gravel to a depth of more than 40 inches.

Ninigret soils are in the landscape with the excessively drained Adams soils and the poorly drained Walpole soils.

Ninigret fine sandy loam, 0 to 8 percent slopes (NgB).—The profile of this soil is the representative one described for the series. Included in mapping were some areas of loamy sand, a few areas of soil that is 10 to 15 percent fine gravel, small pockets of poorly drained and very poorly drained sandy soil, some small areas that have a substratum of silt loam at a depth of 30 to 40 inches, and some areas that have stratified gravel at a depth of more than 40 inches.

This soil is strongly acid. Natural fertility is very low. Surface runoff is slow, permeability is moderately rapid, and the available water capacity is moderate. Mottling at a depth of about 15 inches indicates the presence of a seasonal water table.

If the water table is controlled by means of smoothing, grading, drainage ditches, and tile, this soil is well suited to grass, legumes, and vegetables. Lime and fertilizer are needed. Other management needs include careful selection of crop varieties, the use of a good system of crop rotation that includes cover crops and green-manure crops, and the utilization of crop residue. (Capability unit IIw–5; woodland group 4; wildlife group 2)

Ondawa Series

The Ondawa series consists of deep, well-drained soils that formed in sandy alluvium. These soils are on flood plains, mostly along the Androscoggin River and the Little Androscoggin River.

Ondawa soils typically have a surface layer of dark-brown fine sandy loam about 8 inches thick. The underlying material is brown to dark grayish-brown fine sandy loam over grayish-brown sand. The depth to the sand is about 30 inches.

Representative profile of Ondawa fine sandy loam in a cultivated field on Abagadasset Point along Merrymeeting Bay, in the town of Bowdoinham.

Ap—0 to 8 inches, dark-brown (10YR 3/3) fine sandy loam; moderate, fine, granular structure; friable; many roots; strongly acid; clear, smooth boundary. 6 to 10 inches thick.

B21—8 to 22 inches, brown (10YR 5/3) fine sandy loam; weak, fine, granular structure; friable; roots common; strongly acid; clear, smooth boundary. 10 to 18 inches thick.

B22—22 to 30 inches, dark grayish-brown (10YR 4/2) fine sandy loam; weak, fine, granular structure; friable; few roots; strongly acid; clear, smooth boundary. 6 to 10 inches thick.

C—30 to 48 inches, grayish-brown (2.5Y 5/2) sand; single grain; loose; about 10 percent fine gravel; strongly acid.

The A1 or Ap horizon ranges from very dark grayish brown (10YR 3/2) to dark brown (10YR 3/3) in color. The B horizon is grayish brown (10YR 5/2 or 2.5Y 5/2), dark grayish brown (10YR 4/2), or brown (10YR 5/3 or 4/3). The B22 horizon is loamy sand in some places instead of fine sandy loam. Below a depth of 30 inches are scattered pockets of sand and gravel.

Ondawa soils occur with the well drained Hadley soils, the moderately well drained Podunk and Winooski soils, and the poorly drained Limerick soils.

Ondawa fine sandy loam (0 to 3 percent slopes) (On).—This soil is on the flood plains of streams and rivers and is flooded occasionally. The profile is the representative one described for the series. Included in mapping were small areas of loamy fine sand, sandy loam, and silt loam and small areas that are free of gravel to a depth of more than 48 inches.

Surface runoff is slow, permeability is moderately rapid, and the available water capacity is moderate.

This soil is especially well suited to alfalfa, orchardgrass, and silage corn. It is also well suited to the common grasses and legumes and to sweet corn, snap beans, potatoes, and other vegetables. It can be farmed intensively even though it is flooded occasionally. Irrigation is beneficial. (Capability unit I–6; woodland group 3; wildlife group 1)

Paxton Series

The Paxton series consists of deep, well-drained loamy soils that formed on firm, compact glacial till. These soils are on rounded hills and ridges in the towns of Turner, Minot, and Poland.

Paxton soils typically have a surface layer of dark grayish-brown loam about 8 inches thick. The subsoil is yellowish-brown fine sandy loam over light olive-brown fine sandy loam. The underlying material is very firm, compact, brittle, olive-gray fine sandy loam at a depth of about 20 inches. The boundary between the subsoil and the compact, brittle underlying material is abrupt.

Representative profile of Paxton loam, 2 to 8 percent slopes, in a road cut in the town of Minot, along the road over Pottle Hill, 3 miles northwest of Hackett Mills.

Ap—0 to 8 inches, dark grayish-brown (10YR 4/2) loam; moderate, fine, granular structure; friable; many roots; about 5 percent coarse fragments more than 2 millimeters in diameter; medium acid; abrupt, smooth boundary. 7 to 10 inches thick.

B21—8 to 14 inches, yellowish-brown (10YR 5/8) fine sandy loam; weak, fine, granular structure; friable; many roots; about 10 percent coarse fragments more than 2 millimeters in diameter; medium acid; abrupt, smooth boundary. 4 to 8 inches thick.

B22—14 to 19 inches, yellowish-brown (10YR 5/4) fine sandy loam; weak, fine, granular structure; friable; roots common; about 10 percent coarse fragments more than 2 millimeters in diameter; medium acid; abrupt, smooth boundary. 4 to 8 inches thick.

B3—19 to 20 inches, light olive-brown (2.5Y 5/4) fine sandy loam; weak, thick, platy structure; firm; few roots; about 10 percent coarse fragments more than 2 millimeters in diameter; medium acid; abrupt, smooth boundary. 1 inch to 2 inches thick.

C1x—20 to 30 inches, olive-gray (5Y 4/2) fine sandy loam; moderate, medium, platy structure; very firm; pores glazed; about 20 percent coarse fragments more than 2 millimeters in diameter; slightly acid; gradual, smooth boundary. 8 to 15 inches thick.

C2x—30 to 42 inches +, dark olive-gray (5Y 3/2) fine sandy loam; moderate, thick, platy structure; very firm; about 25 percent coarse fragments more than 2 millimeters in diameter; slightly acid.

The A1 or Ap horizon ranges from dark grayish brown (10YR 4/2) to dark brown (10YR 3/3 or 4/3). The colors of the B horizon range from 7.5YR through 2.5Y in hue, from 3 to 5 in value, and from 4 to 8 in chroma. The B horizon is fine sandy loam or sandy loam. The depth to the C horizon, or fragipan, ranges from 18 to 30 inches. The C horizon is olive gray (5Y 4/2 or 5/2) or dark olive gray (5Y 3/2). The content of coarse fragments is 5 to 25 percent in the solum and 10 to 30 percent in the C horizon.

Paxton soils are in the landscape with Charlton and Woodbridge soils.

Paxton loam, 2 to 8 percent slopes (PbB).—The profile of this soil is the representative one described for the series (fig. 14). Included in mapping were small level areas in slight depressions that are moderately well drained.

Surface runoff is slow. Permeability is moderate above the fragipan and slow in it. The available water capacity is high.

This soil is well suited to potatoes, sweet corn, beans, and other cultivated crops and to alfalfa, silage corn, and other feed crops. The upper slopes are well suited to apple orchards.

Lime and fertilizer are needed. Fertility can be improved by using a good system of crop rotation that includes green-manure crops and winter cover crops. Erosion can be controlled with contour strips, diversion terraces, and a suitable system of crop rotation. (Capability unit IIe–4; woodland group 3; wildlife group 1)

Paxton loam, 8 to 15 percent slopes (PbC).—The profile of this soil is similar to the representative one described for the series. The depth to the fragipan is between 20 and 26 inches. There are a few stones in the plow layer (fig. 15) and progressively more in the lower layers.

Surface runoff is medium. Permeability is moderate above the fragipan and slow in it. The available water capacity is high.

This soil is well suited to silage corn, vegetables, grasses, and legumes. A large proportion of the acreage in apple orchards in the two-county area is on this soil.

Lime and fertilizer are needed. Runoff can be controlled and the amount of water available to plants increased by means of diversion ditches. Other measures needed are the careful selection of crop varieties and the use of a good system of crop rotation. Excess water in apple orchards

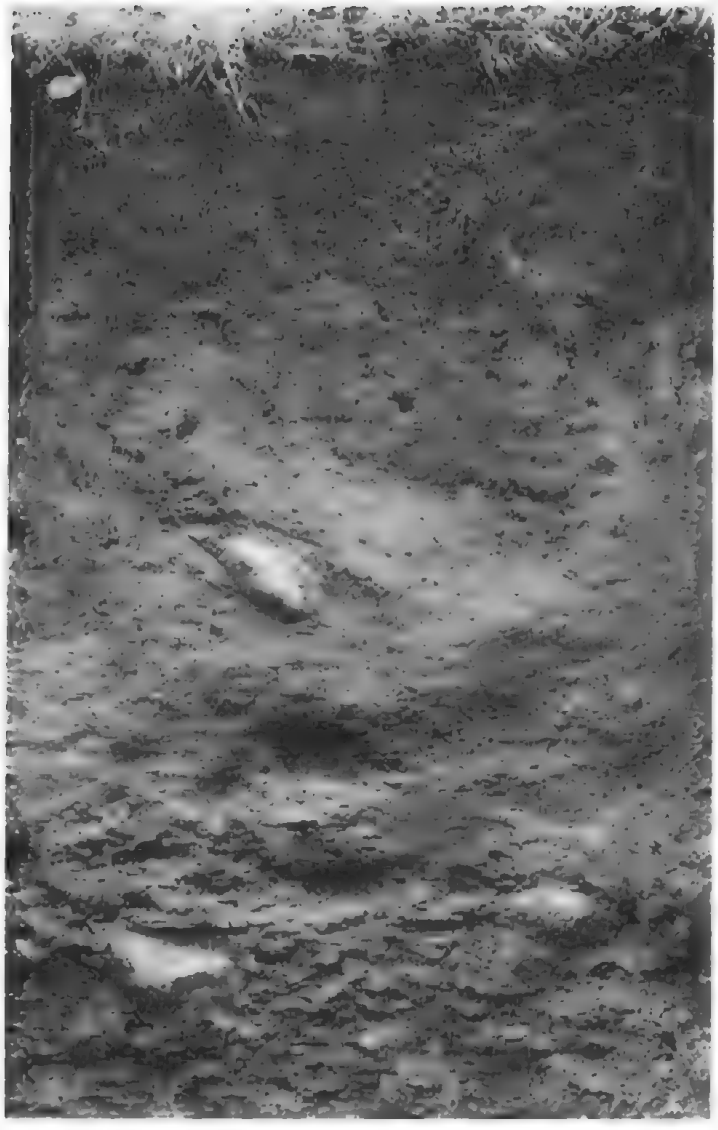

Figure 11.—Profile of Paxton loam, 2 to 8 percent slopes, showing the distribution of roots.

can be removed and the aeration improved by using tile drains in depressions and seep spots. (Capability unit IIIe–4; woodland group 3; wildlife group 1)

Paxton loam, 15 to 25 percent slopes (PbD).—The profile of this soil is similar to the representative one described for the series, but the depth to the fragipan is between 18 and 22 inches in most places. There are seep spots on the lower part of the moderately steep and steep slopes. Included in mapping were a few areas of a similar soil that has slopes of more than 25 percent, a few small areas where the depth to the fragipan is less than 18 inches, and a few spots where the depth to bedrock is less than 40 inches.

Surface runoff is rapid. Permeability is moderate above the fragipan and slow in it. The available water capacity is high where the fragipan is deepest and moderate where the fragipan is at a depth of less than 18 inches.

Although otherwise suited, this soil cannot be used for apple orchards, because it is so steep that the use of heavy equipment is hazardous. Erosion can be controlled by seeding or planting in contour strips, by using a good system of crop rotation, and by fertilizing adequately. (Capability unit IVe–4; woodland group 3; wildlife group 10)

Paxton very stony loam, 0 to 8 percent slopes (PfB).—The profile of this soil is similar to the representative one described for the series, but the A1 horizon is 3 or 4 inches thick and the B21 horizon is dark yellowish brown (10YR 4/4) or strong brown (7.5YR 5/5) and is 4 or 5 inches thick. In wooded areas the depth to the fragipan is between 18 and 30 inches. Stones 1 foot or more in diameter are scattered 5 to 30 feet apart on the surface. Included in mapping were a few small, level areas that are moderately well drained, a few areas where the depth to bedrock is less than 40 inches, and a few areas where more than 3 percent of the surface is covered with stones.

Surface runoff is slow. Permeability is moderate above the fragipan and slow in it. The available water capacity is high.

This soil is suited to long-term production of hay and pasture. It is well suited to apple orchards in places where the slope is more than 5 percent but not where the slope is less than 5 percent, because frost may damage or destroy the trees. Large stones on the surface and in the soil make plowing, seeding, and other management practices difficult. (Capability unit VIs–4; woodland group 3; wildlife group 7)

Paxton very stony loam, 8 to 15 percent slopes (PfC).—The profile of this soil is similar to the representative one described for the series, but the A1 horizon is 3 or 4 inches thick, the B21 horizon is strong brown (7.5YR 5/6) or dark yellowish brown (10YR 4/4) and is 4 or 5 inches thick, and the depth to the fragipan is between 20 and 26 inches. The stone content is as much as 3 percent, and as much as 3 percent of the surface is covered with stones.

Included in mapping were a few pockets of moderately well drained soil, a few areas where more than 3 percent of the surface is covered with stones, and a few spots where the depth to bedrock is less than 40 inches.

Surface runoff is medium. Permeability is moderate above the fragipan and slow in it. The available water capacity is high.

If cleared of stones, this soil is suited to apple orchards. It is suited for the long-term production of hay and pasture, but the stones make plowing, seeding, and other management practices difficult. (Capability unit VIs–4; woodland group 3; wildlife group 7)

Paxton very stony loam, 15 to 30 percent slopes (PfD).—The profile of this soil is similar to the representative one described for the series, but the A1 horizon is 3 or 4 inches thick, the B1 horizon is 4 or 5 inches thick, and the depth to the fragipan is between 18 and 26 inches. The stone content is as much as 3 percent, and as much as 3 percent of the surface is covered with stones.

Included in mapping were a few areas that have slopes of more than 30 percent, a few areas where more than 3 percent of the surface is covered with stones, some areas where the depth to the fragipan is less than 16 inches, and some where the depth to the fragipan is more than 26 inches.

Surface runoff is rapid. Permeability is moderate above

Figure 15.—Typical field of Paxton loam, 8 to 15 percent slopes, that has been plowed up and down the slope, showing the stones that are commonly turned up by plowing and have to be removed before planting.

the fragipan and slow in it. The available water capacity is high.

The suitability of this soil for hay, pasture, and apple orchards is limited by the slope and the numerous large stones. The application of lime and fertilizer in areas used for hay and pasture is the only feasible management practice. The use of farm machinery is hazardous. (Capability unit VIs-4; woodland group 3; wildlife group 8)

Peat and Muck

Peat and Muck are organic soils that occur in depressions throughout the two-county area (fig. 16). Areas of these soils range from ¼ acre to 200 acres in size.

The organic material is made up of partly decomposed woody plants, ferns, sedges, cattails, reeds, and sphagnum moss. It ranges from at least 1 foot to more than 10 feet in thickness but commonly is 5 or 6 feet thick (4).[1] Beneath it is sand, gravel, clay, glacial till, and bedrock.

Representative profile of Peat and Muck in a small bog in the town of Turner on the west side of State Route 4, along the Auburn town line.

Figure 16.—Typical area of Peat and Muck. The surrounding soils are in the Adams series.

1—0 to 6 inches, very dark brown (10YR 2/2), decomposed plant material; many pieces of partly decomposed woody plants; many roots of plants and shrubs.

2—6 to 24 inches, dark-brown (10YR 3/3), saturated, well-decomposed peat matted together; a few rhizomes and shrub roots in the uppermost 6 inches.

[1] Italic numbers in parentheses refer to Literature Cited, p. 81.

3—24 to 60 inches, dark yellowish-brown (10YR 4/4), partly decomposed, fibrous peat, but after exposure to the air for an hour, the still saturated material changes to very dark brown (10YR 2/2); water flows freely into pit from the sides.

Peat and Muck (0 to 1 percent slopes) (Pa).—These soils are saturated most of the year. The water table is no more than 12 or 15 inches below the surface even in the driest year. The woody plants growing in the peat bogs are June pink azalea, hardhack, leatherleaf, Labrador-tea azalea, mountain-holly, highbush blueberry, lowbush blueberry, cranberry (bog), huckleberry, and sheep laurel. Other plants are reeds, sedges, cattails, aquatic woody plants, and scattered black spruce, white-cedar, balsam fir, and tamarack trees. (Capability unit VIIw–9; woodland group 8; wildlife group 14)

Podunk Series

The Podunk series consists of moderately well drained fine sandy loams. These soils are occasionally flooded. They are on bottom lands, mostly along the Little Androscoggin River and in areas where the Androscoggin River and the Kennebec River enter Merrymeeting Bay.

These soils typically have a surface layer of dark-brown fine sandy loam about 10 inches thick. The underlying material is yellowish-brown fine sandy loam to a depth of about 30 inches. Below this it is light yellowish-brown loamy sand. Below a depth of 16 inches are dark-brown, gray, dark yellowish-brown, and light brownish-gray mottles.

Representative profile of a Podunk fine sandy loam, along Bog Brook in the town of Minot.

Ap—0 to 10 inches, dark-brown (10YR 3/3) fine sandy loam; weak, fine, granular structure; friable; many roots; very strongly acid; clear, smooth boundary. 9 to 11 inches thick.

B21—10 to 16 inches, yellowish-brown (10YR 5/4) fine sandy loam; weak, fine, granular structure; friable; roots common; strongly acid; clear, smooth boundary. 5 to 7 inches thick.

B22—16 to 30 inches, yellowish-brown (10YR 5/4) fine sandy loam; common, medium, prominent mottles of dark brown (10YR 3/3) and gray (10YR 5/1); weak, fine, granular structure; friable; few roots; strongly acid; clear, smooth boundary. 10 to 18 inches thick.

IIC—30 to 42 inches +, light yellowish-brown (10YR 6/4) loamy sand; many, medium, prominent mottles of dark yellowish brown (10YR 4/4) and light brownish gray (10YR 6/2); single grain; loose; strongly acid.

The A1 or Ap horizon is brown (10YR 4/3 or 5/3) to dark brown (10YR 3/3). The color of the B horizon ranges from 10YR to 2.5Y in hue, 3 to 6 in value, and 1 to 4 in chroma. The depth to mottling ranges from 12 to 20 inches. The IIC horizon ranges from fine sandy loam to loamy sand or coarse sand and gravel in texture. It has a color hue of 10YR to 5Y, a value of 4 to 6, and a chroma of 2 to 5. Depth to this horizon is 30 inches or more.

Podunk fine sandy loam (0 to 3 percent slopes) (Py).—This soil is on bottom lands along the major rivers and streams in both counties. It is flooded occasionally in winter and early in spring but seldom in the growing season. Included with this soil in mapping were areas of medium acid and slightly acid soil and areas where, below a depth of 20 inches, the underlying material is gravelly sandy loam or loamy fine sand.

Surface runoff is slow to ponded, permeability is moderate, and the available water capacity is moderate to high.

This soil is well suited to grass and legumes and to annual cultivated crops. It can be worked earlier in spring if smoothed or graded and drained by means of field ditches. Other management needs include the use of a good system of crop rotation that includes cover crops and green-manure crops and utilization of crop residue. (Capability unit IIw–6; woodland group 4; wildlife group 2)

Rock Land

Rock land consists of areas where bedrock crops out on more than 50 percent of the surface and the soil is not more than 6 inches thick. Most of this land is along the coast. The bedrock is mainly schistose.

Rock land-Hollis soil material, 0 to 15 percent slopes (RhC) is 50 to 70 percent rock outcrop. The rest is stony soil material of sand, loamy sand, sandy loam, and silt loam, that is only 1 inch to 6 inches thick over bedrock. Surface runoff is rapid.

Growing in the many deep cracks in the rocks are blueberry bushes and other drought-tolerant woody plants and, in the larger cracks and pockets, oak, white pine, and red spruce trees. (Capability unit VIIs–1; woodland group 8; wildlife group 13)

Rock land-Hollis soil material, 15 to 45 percent slopes (RhD) is 70 to 90 percent rock outcrop. The rest is stony soil material that is no more than 6 inches thick over bedrock. The use of these areas is limited to woodland, wildlife, and recreation. (Capability unit VIIs–1; woodland group 8; wildlife group 13)

Saco Series

The Saco series consists of very poorly drained soils that are on bottom lands, just above the normal water level of the stream or river, and are saturated nearly all the time.

Saco soils typically have a 10-inch surface layer of black silt loam. The underlying material, to a depth of 30 inches or more, is gray, mottled silt loam.

Representative profile of Saco silt loam, along the Cathance River in the town of Topsham, upstream from the bridge on U.S. Route 201.

O1—1 inch to 0, mat of dead grass.

A1—0 to 10 inches, black (10YR 2/1) silt loam; moderate, medium, granular structure; friable; many grass roots; slightly acid; clear, smooth boundary. 6 to 10 inches thick.

Bg—10 to 26 inches; mottled gray (5Y 5/1) and greenish-gray (5GY 5/1) silt loam; many fine, prominent streaks and mottles of dark yellowish brown (10YR 4/4) and strong brown (7.5YR 5/6) along root channels; massive; friable; roots common; slightly sticky when wet; slightly acid; gradual, wavy boundary. 12 to 18 inches thick.

C1g—26 to 42 inches, gray (5Y 5/1) silt loam; massive; friable; slightly sticky when wet; few roots; slightly acid; abrupt, smooth boundary. 12 to 18 inches thick.

C2g—42 to 50 inches +, bluish-gray (5B 5/1) silt loam; massive; slightly sticky when wet; few root channels stained with dark yellowish brown (10YR 4/4); slightly acid.

The A horizon ranges from black (N 2/0) to very dark gray (10YR 4/1) in color. The matrix color of the B horizon is commonly neutral gray (N 5/0) to greenish gray (5GY 5/1), and the mottles and streaks have a hue of 5YR to 5Y, a value of 2 to 6, and a chroma of 1 to 8. The C horizon ranges from neutral gray (N 5/0) to greenish gray (5GY

5/1) or bluish gray (5B 5/1) in color and from silt loam to fine sandy loam in texture. In places an A1 horizon 3 to 6 inches thick is buried between C horizons. There is much variation in the thickness of horizons and in the sequence of colors. Reaction ranges from medium acid to neutral throughout the profile.

Saco silt loam (0 to 3 percent slopes) (So).—This soil is on flood plains and is frequently flooded. Fresh deposits of sediment are received each year. The profile is the representative one described for the series. Included in mapping were some soils that have a subsoil of loamy sand and silty clay loam and some areas of a mucky soil.

The water table is near the surface most of the year. Surface runoff is slow to ponded, and permeability is moderate to slow.

Very frequent flooding and very poor drainage limit the use of this soil to woodland and wildlife habitat. Drainage is generally not practical, because of the flooding and the lack of suitable outlets. (Capability unit VIw–6; woodland group 6; wildlife group 14)

Scantic Series

The Scantic series consists of deep, poorly drained, level or nearly level soils that formed in silt and clay deposited by ponded water. These soils are in Sagadahoc County and in the southeastern part of Androscoggin County.

Scantic soils typically have a 7-inch surface layer of dark-gray silt loam and a subsoil of olive-gray silt loam mottled with light gray and yellowish brown over olive-gray silty clay mottled with greenish gray and light olive brown. The underlying material, below a depth of about 30 inches, is mottled, olive-gray silty clay loam.

Representative profile of Scantic silt loam along State Route 24, about one-half mile south of the village of Bowdoinham.

Ap—0 to 7 inches, silt loam, dark gray (10YR 4/1) when moist and light brownish gray (10YR 6/2) when dry; moderate, fine, granular structure; friable; many grass roots; strongly acid; clear, smooth boundary. 6 to 9 inches thick.

B21g—7 to 13 inches, olive-gray (5Y 5/2) silt loam; many, coarse, prominent mottles of light gray (5Y 7/2) and yellowish brown (10YR 5/6); moderate, medium, granular structure; firm; few roots; medium acid; clear, smooth boundary. 5 to 8 inches thick.

IIB22g—13 to 30 inches, olive-gray (5Y 4/2) silty clay; many, medium, prominent mottles of greenish gray (5GY 5/1) and light olive brown (2.5Y 5/4); very coarse prisms breaking to strong, medium or fine, subangular blocks; the prisms become larger with increasing depth; films of gray (5Y 5/1) silt loam ⅛ to ¼ inch thick on prisms; prominent manganese stains on many block faces; firm; thick continuous clay films on blocks; neutral; gradual, smooth boundary. 10 to 20 inches thick.

IIC—30 to 60 inches, olive-gray (5Y 4/2) silty clay loam; many, fine, prominent mottles of greenish gray (5GY 5/1) and light olive brown (2.5Y 5/4); very coarse, prismatic structure; films of gray (5Y 5/1) silt loam ⅛ to ¼ inch thick; firm; neutral.

The texture of the IIB horizon ranges from silty clay to clay loam. The ped interiors are dark olive gray (5Y 3/2) or olive gray (5Y 4/2), and the ped faces have films of gray (5Y 6/1) or light olive gray (5Y 6/2) stained black with manganese. Just above this horizon in some areas is a discontinuous A′ horizon of silt loam or silty clay loam. The IIC horizon ranges from silty clay loam to silty clay in texture and from very coarse prismatic to moderate, coarse, subangular blocky in structure.

Scantic soils are in the landscape with the moderately well drained Buxton and Belgrade soils and the very poorly drained Biddeford soils.

Scantic silt loam, 0 to 3 percent slopes (ScA).—In some places this soil is in slight depressions that have no surface drainage. The large amount of water held in the uppermost 18 inches keeps this soil cold and wet until late in spring or early in summer. The profile is the representative one described for the series. Included in mapping were small areas where there are outcrops of bedrock.

This soil is generally medium acid, but in a few places, it has a slightly acid substratum. Natural fertility is low. Surface runoff is medium to ponded, permeability is slow or very slow, and the available water capacity is high in the surface layer and moderate in the substratum.

This soil is well suited to pasture, green chop, and other feed crops.

Field ditches remove excess water and allow the soil to warm up enough so the pastures and meadow crops can grow. Areas between the ditches need to be smoothed to remove old bedding-type drainage. Pastures and meadows need to be limed, fertilized, and seeded with suitable mixtures. (Capability unit IVw–7; woodland group 6; wildlife group 3)

Scarboro Series

The Scarboro series consists of deep, very poorly drained, level soils that formed in outwash sand and gravel. These soils are in shallow depressions on outwash plains.

Scarboro soils typically have a surface layer of black, friable fine sandy loam about 10 inches thick over gray fine sand that extends to a depth of about 21 inches. The underlying material is olive-gray fine sand and interbedded gravel.

Representative profile of Scarboro fine sandy loam, 1 mile south of State Route 136, on the Davis Road in the town of Durham.

A1—0 to 10 inches, black (10YR 2/1) fine sandy loam; moderate, fine, granular structure; friable; very strongly acid; clear, smooth boundary; 6 to 12 inches thick.

A2g—10 to 21 inches, gray (5Y 5/1 or 6/1) fine sand; single grain; loose; very strongly acid; clear, smooth boundary. 7 to 11 inches thick.

Cg—21 to 36 inches +, olive-gray (5Y 5/2) fine sand and some interbedded gravel; single grain; loose; strongly acid.

The A2g horizon is light-gray (5Y 7/1 or 7/2) or gray (5Y 5/1 or 6/1) fine sand or loamy sand. The Cg horizon ranges from olive gray (5Y 5/2) to light olive brown (2.5Y 5/4) in color and from fine sand to loamy sand in texture. In some areas it has a few faint mottles of yellowish brown (10YR 5/4 or 5/6) and light gray (2.5Y 7/2) and scattered mottles of bluish gray (5BG 6/1). The Cg horizon is nearly always saturated. Streaks or pockets of dark brown or very dark brown, iron- and humus-rich material occur at depths between 21 and 48 inches.

Scarboro soils occur with Walpole, Ninigret, Adams, and Hinckley soils.

Scarboro fine sandy loam (0 to 3 percent slopes) (So).—This soil has little or no surface drainage, and water is ponded (fig. 17) on the surface half the time. The water table is permanently near the surface. The excess water makes this soil cold until late in spring or early in sum-

Figure 17.—Water ponded on Scarboro fine sandy loam, which has a high water table even in dry seasons.

mer. The profile is the representative one described for the series.

This soil has good internal drainage. Surface runoff is very slow or ponded, permeability is rapid, and the available water capacity is moderate.

The high water table limits the use of this soil to pasture. Reed canarygrass and other water-tolerant plants make good pasture plants.

This soil can easily be drained if satisfactory outlets can be found, but care should be taken not to overdrain and lower the water table enough so the soil is droughty. Fertility is difficult to maintain because water percolates through the soil rapidly and leaches out the plant nutrients. (Capability unit Vw–5; woodland group 6; wildlife group 4)

Suffield Series

The Suffield series consists of deep, well-drained soils that formed in thick deposits of marine and lacustrine silt and clay. These soils are on dissected terraces in the northern part of Sagadahoc County and in the south-central part of Androscoggin County.

Suffield soils typically have a surface layer of dark-brown silt loam about 8 inches thick. The subsoil is dark yellowish-brown or yellowish-brown silt loam over olive-brown silty clay loam. The underlying material at a depth of 36 inches is light olive-gray silty clay.

Representative profile of a Suffield silt loam (fig. 18) in a borrow pit on the River Road, one-fourth mile south of Lewiston.

Ap—0 to 8 inches, dark-brown (10YR 3/3) silt loam; moderate, fine, granular structure; friable when moist, slightly sticky when wet; many roots; medium acid; abrupt, wavy boundary. 6 to 9 inches thick.

B21—8 to 10 inches, dark yellowish-brown (10YR 4/4) silt loam; weak, fine, granular structure; friable; numerous roots; medium acid; abrupt, wavy boundary. 2 to 8 inches thick.

B22—10 to 20 inches, yellowish-brown (10YR 5/6) silt loam; weak, coarse, granular structure; friable; many roots; medium acid; clear, wavy boundary. 8 to 12 inches thick.

B23—20 to 24 inches, light olive-brown (2.5Y 5/4) silt loam; weak, medium, granular structure; friable; many roots; slightly acid; abrupt, wavy boundary. 3 to 6 inches thick.

IIB3—24 to 36 inches, silty clay loam, olive (5Y 4/3) ped interiors, olive-brown (2.5Y 4/4) ped faces, and light olive brown (2.5Y 5/4) when crushed; weak, coarse, prismatic structure breaking to weak, medium, subangular blocky; slightly firm in place or friable if removed when moist, sticky when wet; films of olive-brown (2.5Y 4/4) and a frosting of grayish-brown (2.5Y 5/2) very fine sand and coarse silt on prism faces; sand grains appear to be uncoated; films on peds are dull; medium acid; gradual, wavy boundary. 8 to 10 inches thick

IIC—36 to 55 inches +, silty clay; olive (5Y 5/3) ped interiors, light olive-gray (5Y 6/2) ped faces, and olive (5Y 4/3) when crushed; weak, coarse, prismatic structure; films of olive (5Y 5/3) very fine sand and coarse silt on prism faces; slightly firm in place or friable when removed when moist, sticky and plastic when wet; slightly acid.

Suffield soils are generally free of coarse fragments but contain scattered rounded, granitic or quartzitic pebbles. The thickness of the silt loam layers ranges from more than 18 inches to less than 40 inches. In undisturbed areas the A1 horizon is very dark gray (10YR 3/1) or very dark brown (10YR 2/2) and is 1 inch to 2 inches thick. The Ap horizon in cultivated areas has a relatively narrow color range of

Figure 18.—Profile of a Suffield silt loam.

10YR 4/2, 3/2, or 3/3 and is 4 to 9 inches thick. Below the A1 horizon in undisturbed areas is a discontinuous A2 horizon, 1 inch to 2 inches thick. The B horizon ranges from dark yellowish brown to strong brown (10YR 4/4 to 7.5YR 5/6 or 5/8) or olive brown (2.5Y 4/4) in color. Below the B21 horizon, in some places, the colors are yellowish brown (10YR 5/4 or 5/6), but in many places, they have hues of 2.5Y or 5Y, values of 3 to 5, and chromas of 2 to 4. The texture of the B21, B22, and B23 horizons is silt loam or loam. In places the B23 horizon is lacking, and the boundary between the B22 horizon and IIB3 horizon is clear or abrupt. In some places in the IIB3 horizon, there are thin discontinuous clay flows and films in the pores and on the vertical ped faces. The upper part of the solum is strongly acid to slightly acid, and the lower part is medium acid to neutral. The IIC horizon is silty clay loam or silty clay and has common, patchy or discontinuous black films.

Suffield silt loam, 8 to 15 percent slopes, eroded (SuC2).—The profile of this soil is similar to the representative one described for the series, but the Ap horizon is 6 or 7 inches thick and the B21 horizon is lacking in most places. Included in mapping were a few areas that have slopes of less than 8 percent.

This soil erodes easily. Surface runoff is rapid, permeability is moderately slow, and the available water capacity is high.

This soil can be used for row crops if erosion is controlled. Lime and fertilizer are needed. Runoff and erosion can be controlled by means of contour stripcropping, diversion terraces, and an adequate system of crop rotation. Productivity can be improved by careful selection of crop varieties, a good system of crop rotation that includes green-manure crops and winter cover crops, and use of the crop residue. (Capability unit IIIe–7; woodland group 3; wildlife group 1)

Suffield silt loam, 15 to 30 percent slopes, eroded (SuD2).—The Ap horizon of this soil is 4 to 6 inches thick, the B21 horizon is very thin or lacking, the mantle of silt loam is 18 to 20 inches thick, and the colors below the B21 horizon are dominantly light olive brown (2.5Y 5/4) or olive (5Y 5/3 or 4/3). Included in mapping were some areas that have slopes of less than 15 percent, a few that have slopes of more than 30 percent, and severely eroded areas less than 1 acre in size.

This soil is very susceptible to erosion if it is disturbed or if the native vegetation is removed. Surface runoff is very rapid, permeability is moderately slow, and the available water capacity is high.

Most areas of this soil are wooded. A few areas are pastured. Pastures and meadows need to be limed, fertilized, and seeded with suitable mixtures. The slope restricts the use of farm machinery. (Capability unit IVe–7; woodland group 3; wildlife group 10)

Sutton Series

The Sutton series consists of deep, moderately well drained soils that formed in glacial till. These soils are on the lower part of long slopes and in slight depressions on hills and ridges.

Sutton soils typically have a 7-inch surface layer of dark-brown loam and a subsoil of yellowish-brown loam over mottled, light olive-brown fine sandy loam that extends to a depth of about 30 inches. The underlying material is mottled, olive sandy loam.

310-542—70——3

Representative profile of Sutton loam, 0 to 8 percent slopes, in an old pasture on top of the ridge, east of the north end of Sabattus Pond.

Ap—0 to 7 inches, dark-brown (10YR 3/3) loam; moderate, medium, granular structure; friable; strongly acid; about 10 percent coarse fragments more than 2 millimeters in diameter; clear, smooth boundary. 4 to 10 inches thick.

B21—7 to 16 inches, yellowish-brown (10YR 5/6) loam; weak, fine, granular structure; friable; about 10 percent coarse fragments more than 2 millimeters in diameter; strongly acid; clear, smooth boundary. 6 to 12 inches thick.

B22—16 to 30 inches, light olive-brown (2.5Y 5/4) fine sandy loam; many, coarse, prominent mottles of olive (5Y 5/3) and yellowish red (5YR 4/8); weak, thick, platy structure; friable; about 15 percent coarse fragments more than 2 millimeters in diameter; strongly acid; gradual, smooth boundary. 12 to 18 inches thick.

C—30 to 42 inches, olive (5Y 4/3) sandy loam; many, coarse, prominent mottles of light olive gray (5Y 6/2) and yellowish red (5YR 4/8); massive; firm; about 20 percent coarse fragments more than 2 millimeters in diameter; strongly acid.

The color of the A horizon ranges from dark brown (10YR 3/3) to very dark grayish brown (10YR 3/2). The B horizon ranges from sandy loam to loam in texture. The color of the B21 horizon is dark yellowish brown (10YR 4/4) or yellowish brown (10YR 5/4 or 5/6), and that of the B22 horizon ranges from light olive brown (2.5Y 5/4 or 5/6) to yellowish brown (10YR 5/4 or 5/6). The content of coarse fragments in the solum is 10 to 30 percent. The C horizon ranges from olive (5Y 4/3) to olive gray (5Y 4/2) in color and from sandy loam to loamy sand in texture. The depth to the C horizon ranges from 24 to 30 inches. The depth to mottling ranges from 14 to 30 inches. The surface ranges from almost free of stones in some cleared areas to very stony.

Sutton soils are near the shallow Hollis soils and the deep Charlton soils. They are similar to Woodbridge soils, but they lack the firm, brittle fragipan that is characteristic of Woodbridge soils.

Sutton loam, 0 to 8 percent slopes (SxB).—There are large stones on the surface of this soil and throughout the profile, but not enough to prevent farming. The profile is the representative one described for the series. The depth to mottling ranges from 14 to 24 inches.

This soil is slightly acid to strongly acid. Natural fertility is low. Surface runoff is slow or medium, permeability is moderate, and the available water capacity is high.

This soil is well suited to silage corn and to sweet corn and other vegetables. Lime and fertilizer are needed. Field ditches and smoothing and grading improve drainage and thus allow the soil to warm up earlier in spring so planting can begin. In places where ditches would interfere with farming operations, underground tile drains can be used. Other beneficial practices are selection of the most suitable crop varieties, a good system of crop rotation that includes winter cover crops and green-manure crops, and use of crop residue. Some stones have to be removed before cultivation is possible. (Capability unit IIw–3; woodland group 4; wildlife group 2)

Sutton loam, 8 to 15 percent slopes (SxC).—This soil occurs either as narrow strips winding down the side of a ridge from a spring or a series of springs or else as bands near the base of hills where the water table is close to the surface. It receives water from the springs and from other seepage. The profile is similar to the representative one described for the series, but the surface layer is only 4 to 7 inches thick, and the depth to mottling is 15 to 30 inches.

Included in mapping were small areas that have slopes of more than 15 percent and small areas in which the depth to mottling is more than 30 inches.

This soil is strongly acid or very strongly acid. Natural fertility is low. Surface runoff is medium, permeability is moderate, and the available water capacity is high.

This soil is used mostly for pasture, hay, and apple orchards, but occasionally cultivated crops are included in a hay-pasture rotation. Diversion ditches are commonly used to remove excess surface water and thus to control erosion in cultivated areas, but tile drains are nearly always required to lower the water table where bands of this soil cross well-drained soils in apple orchards. Other management needs include control of runoff, careful selection of crop varieties, and applications of lime and fertilizer. (Capability unit IIIew-3; woodland group 4; wildlife group 1)

Sutton very stony loam, 0 to 8 percent slopes (SyB).—As much as 3 percent of the surface of this soil is covered with stones. The profile is similar to the representative one described for the series, but the A1 horizon is dark grayish brown and only 3 to 4 inches thick and the depth to mottles is 14 to 24 inches. Included in mapping were a few small poorly drained areas, a few areas where more than 3 percent of the surface is covered with stones, and a few areas where the depth to bedrock is less than 40 inches.

Surface runoff is slow to ponded, permeability is moderate, and the available water capacity is high.

This soil is well suited to all woodland trees grown commercially in the two-county area, and nearly all of it is wooded. The cleared areas are used mostly for long-term hay and pasture (fig. 19). Stoniness is the main limitation. More stones are exposed each time the soil is plowed for reseeding. (Capability unit VIs-3; woodland group 4; wildlife group 12)

Sutton very stony loam, 8 to 15 percent slopes (SyC).—This soil is mostly in narrow drainageways and on the side of glacial-till ridges. As much as 3 percent of the surface is covered with stones, and the stone content in the soil is about the same. The profile is similar to the representative one described for the series, but the A1 horizon is only 2 to 3 inches thick, the B21 horizon is dark yellowish brown and 1 inch to 3 inches thicker, and the depth to mottles ranges from 15 to 30 inches.

Included in mapping were a few areas that have slopes of more than 15 percent and a few areas where more than 3 percent of the surface is covered with stones.

Surface runoff is medium, permeability is moderate and the available water capacity is high.

Figure 19.—Pasture on Sutton very stony loam, 0 to 8 percent slopes.

This soil is well suited to the production of all woodland trees grown commercially in the two-county area, and nearly all of it is wooded. Most cleared areas are narrow strips that have been drained with tile and are used for apple orchards. Clearing and draining more areas for use as orchards and grassland are desirable where this soil occurs in a favorable pattern with other less stony but well-drained soils. (Capability unit VIs–3; woodland group 4; wildlife group 12)

Swanton Series

The Swanton series consists of poorly drained soils that formed in moderately coarse textured outwash material underlain by marine or lacustrine clayey material at a depth of 18 to 40 inches.

Swanton soils have a surface layer of very dark gray fine sandy loam about 7 inches thick and a subsoil of grayish-brown fine sandy loam mottled with yellowish brown. Below this is mottled, light brownish-gray sandy loam underlain by mottled, olive silty clay loam and silty clay. The underlying material, at a depth of about 40 inches, is olive clay.

Representative profile of Swanton fine sandy loam, in an old field 3 miles south of the village of Durham along State Route 136.

Ap—0 to 7 inches, very dark gray (10YR 3/1) fine sandy loam; weak, fine, granular structure; friable; many grass roots; strongly acid; abrupt, smooth boundary. 5 to 8 inches thick.

B21g -7 to 10 inches, grayish-brown (10YR 5/2) fine sandy loam; few, medium, distinct mottles of yellowish brown (10YR 5/4); weak, fine, granular structure; friable; common roots; strongly acid; abrupt, wavy boundary. 2 to 4 inches thick.

B22g—10 to 18 inches, grayish-brown (2.5Y 5/2) fine sandy loam; many, medium, distinct mottles of yellowish brown (10YR 5/6); weak, fine, granular structure; friable; few roots; strongly acid; abrupt, wavy boundary. 6 to 8 inches thick.

A'2g—18 to 22 inches, light brownish-gray (2.5Y 6/2) sandy loam; many, coarse, faint mottles of olive brown (2.5Y 4/4); weak, thick, platy structure; friable; strongly acid; abrupt, smooth boundary. 4 to 6 inches thick.

IIB'2g—22 to 30 inches, olive (5Y 5/3) silty clay loam; films of olive gray (5Y 5/2) on ped faces; common, fine, prominent mottles of yellowish brown (10YR 5/6) in ped interiors; moderate, medium, blocky structure; firm; thin films and dark stains on peds; slightly acid; clear, wavy boundary. 7 to 10 inches thick.

IIB'3g—30 to 40 inches, olive (5Y 4/3) silty clay; films of light gray (5Y 7/2) and a few, fine, distinct mottles of light olive brown (2.5Y 5/4) on ped faces; weak, medium, platy structure breaking to moderate, very fine, blocky structure; firm; few films in pores and on ped faces; black stains on ped faces; slightly acid; gradual, wavy boundary. 8 to 12 inches thick.

IIC—40 to 48 inches, olive (5Y 4/3) clay; dark-gray (5Y 4/1) films on ped faces; weak, very thick, platy structure; firm; few films on ped faces; slightly acid.

The color of the A horizon, in both plowed and undisturbed areas, has a hue of 7.5YR to 10YR, a value of 2 or 3, and a chroma of 1 or 2. The B2 horizon ranges from very fine sandy loam to sandy loam in texture, and the matrix color has a hue of 10YR to 5Y, a value of 3 to 5, and a chroma of 1 or 2. In undisturbed areas, the B21 horizon is gray (5Y 5/1 or 6/1), is as much as 4 to 6 inches thick, and has mottles that are few or common in number and distinct or prominent in contrast. The IIB horizon ranges from sandy clay loam to clay, and the matrix color has a hue of 2.5Y or 5Y, a value of 4 or 5, and a chroma of 1 to 3. The IIC horizon ranges from silty clay loam to clay in texture. The reaction is strongly acid or medium acid in the upper part of the solum and medium acid to neutral in the substratum.

Swanton fine sandy loam, 0 to 3 percent slopes (SzA).—This soil is at the headwaters of small streams. It is cold and wet until late June in most summers and wet after the first heavy rain in fall. The profile is the representative one described for the series. Included in mapping were a few areas of silt loam and a few areas where sandy loam extends to a depth of less than 18 inches.

This soil is strongly acid and low in natural fertility. Surface runoff is slow. In the upper layers, permeability is moderately rapid and the available water capacity is high, but in the silty and clayey lower layers, permeability is very slow and the available water capacity is moderately low.

Most of this soil is wooded, but a small acreage is used for pasture and hay. The only suitable plants are those that can tolerate saturated soil for several weeks. Field ditches and smoothing between ditches are needed to remove excess water. Meadows and pastures need to be limed, fertilized, and seeded with suitable mixtures. (Capability unit IIIw–8; woodland group 5; wildlife group 3)

Tidal Marsh

Tidal marsh (Tn) is covered with 6 inches to 3 feet of water at high tide. It has a black mucky surface layer over silty, sandy, or clayey soil material. Included in mapping were the fresh-water marshes around Androscoggin Lake.

In the small marshes along the coast where the water is salty or brackish, the vegetation is mainly salt-marsh cordgrass, but where the water is less salty, the vegetation consists mainly of grass, cattails, sedges, and wildrice. An example of a less salty marsh is the one along Merrymeeting Bay, the largest marsh in Sagadahoc County.

These areas are not suitable for agricultural use, because they are wet or frequently flooded, but they are valuable as feeding and nesting areas for waterfowl and other wetland wildlife (*9*). (Capability unit VIIIw–99; woodland group 8; wildlife group 14)

Walpole Series

The Walpole series consists of deep, poorly drained, level or nearly level soils. These soils are in narrow bands or small pockets on glacial terraces and outwash plains throughout the two-county area.

Walpole soils typically have a 6-inch surface layer of very dark gray fine sandy loam and a 9-inch subsoil of mottled, light olive-gray fine sandy loam. The underlying material is mottled fine sand over mottled, greenish-gray sand.

Representative profile of Walpole fine sandy loam along the Davis Road, in the town of Durham, 3 miles south of State Route 136.

Ap—0 to 6 inches, very dark gray (10YR 3/1) fine sandy loam; strong, medium, granular structure; friable; many grass roots; strongly acid; abrupt, smooth boundary. 5 to 7 inches thick.

B2—6 to 15 inches, light olive-gray (5Y 6/2) fine sandy loam; many, medium, prominent mottles of dark brown (7.5YR 4/2) and yellowish brown (10YR 5/6); weak, fine, granular structure; friable; few grass roots; strongly acid; clear, smooth boundary. 7 to 11 inches thick.

C1g—15 to 30 inches, gray (5Y 5/1) fine sand; common, coarse, prominent mottles of strong brown (7.5YR 5/8) and light gray (5Y 7/2); single grain; loose; strongly acid; abrupt, wavy boundary. 13 to 20 inches thick.

C2g—30 to 60 inches +, greenish-gray (5GY 5/1) sand; few, coarse, prominent mottles of strong brown (7.5YR 5/8) and light gray (5Y 7/2); single grain; loose; 10 percent fine gravel; strongly acid.

The A horizon ranges from very dark grayish brown (10YR 3/2) to gray (10YR 5/1) in color. The B horizon is light olive gray (5Y 6/2), olive (5Y 5/3), and grayish-brown (2.5Y 5/2) fine sandy loam or sandy loam. The C horizon ranges from gray (5Y 5/1) to greenish gray (5GY 5/1) or bluish gray (5B 5/1) in color and from fine sand to coarse sand in texture. In some areas the uppermost 4 feet of the profile has a gravel content of 1 to 15 percent.

Walpole soils are near the moderately well drained Ninigret soils and the excessively drained Adams and Hinckley soils.

Walpole fine sandy loam (0 to 3 percent slopes) (Wa).—This soil has a water table at or near the surface about half the time. The profile is the representative one described for the Walpole series. Included in mapping were a few areas of fine sandy loam or very fine sandy loam and some areas that have slightly cemented reddish-brown and yellowish-red masses 3 to 4 inches in diameter in the lower part of the B2 horizon.

This soil is strongly acid and is very low in fertility. Surface runoff is slow to ponded, permeability is rapid or very rapid, and the available water capacity is high.

Most areas of this soil are wooded or are idle and growing up to weeds and bushes. Drainage by means of field ditches would be necessary for hay or pasture, and tile drainage for cultivated crops. Only plants that can tolerate saturated soil for a period of several weeks are suitable. Careful selection of crop varieties, a good system of crop rotation that includes green-manure crops, and applications of lime and fertilizer would be needed if any areas were drained and cultivated. (Capability unit IIIw–5; woodland group 5; wildlife group 3)

Whately Series

The Whately series consists of very poorly drained, level and depressional soils that formed in sandy sediments that had been deposited over marine clay. These soils are near the headwaters of streams that empty into the Androscoggin River. They receive runoff from surrounding soils.

Whately soils typically have a surface layer of dark-colored organic material over very dark gray fine sandy loam that is mottled in the lower part. The subsoil and underlying material are mottled, greenish-gray silty clay loam.

Representative profile of Whately fine sandy loam in a pasture 1,500 feet west of a farm homestead, one-half mile north along the Bowdoin town line from the southeastern corner of the town of Webster.

O2—5 inches to 0, black (5YR 2/1) well-decomposed mull containing many fine roots; has a feeling of greasiness; strongly acid; abrupt, wavy boundary. 2 to 8 inches thick.

A1—0 to 7 inches, very dark gray (5Y 3/1) fine sandy loam; some spots or streaks of olive gray (5Y 4/2); weak, medium or coarse, granular structure; some root channels and pores; high organic-matter content; slightly acid; abrupt, wavy boundary. 4 to 8 inches thick.

A2g—7 to 20 inches, gray (5Y 5/1) fine sandy loam; a few, fine, distinct mottles of light olive brown (2.5Y 5/4) in the lower part; massive (no apparent cleavage planes); slightly firm in place and friable if removed; few root hairs; slightly acid; abrupt, wavy boundary. 6 to 15 inches thick.

IIBg—20 to 33 inches, greenish-gray (5GY 5/1) silty clay loam; common, fine and medium, distinct mottles of light olive brown (2.5YR 5/4); weak, fine, subangular blocky structure; slightly firm in place or friable if removed when moist, sticky when wet; some fine pores are lined with gray (5Y 5/1) fine silty material that has a dull sheen, other pores have no observable films; no roots; soil material is permanently moist or wet; slightly acid; gradual, wavy boundary. 10 to 20 inches thick.

IICg—33 to 46 inches +, greenish-gray (5GY 5/1) silty clay loam; many, fine and medium, distinct mottles of light olive brown (2.5Y 5/4); massive in place, and has moderate, fine, blocky structure if removed; very sticky; neutral; horizon is permanently wet; mottled areas around pores have a slightly firmer consistence than the matrix.

The colors in the O2 horizon have a hue of 5YR to 10YR, a value of 2 to 3, and a chroma of 0 to 2. The A1 horizon ranges from sandy loam to very fine sandy loam in texture and has a color hue of 5Y to 10YR, a value of 2 to 3, and a chroma of 1 or 2. Brown staining of the pore walls caused by root hairs is common. The A2g horizon is sandy loam, fine sandy loam, and very fine sandy loam and has a color hue of 5Y or 2.5Y, a value of 4 to 6, and a chroma of 0 or 1. This horizon is generally free of mottles in the upper part, but in the lower part it may have a few mottles that are fine or medium in size and faint or distinct in contrast. The IIB horizon ranges from sandy clay loam to clay in texture and has a color hue of 10YR to 5GY, a value of 4 to 6, and a chroma of 1 or 2. At a depth of 30 inches or more, this horizon has few or common, distinct or prominent mottles. The IICg horizon is silty clay loam, silty clay, or clay and is similar to the IIBg horizon in color. The reaction is medium acid or slightly acid in the moderately coarse textured layers and slightly acid or neutral in the moderately fine textured layers. The content of coarse fragments is less than 0.1 percent.

Whately soils are in the landscape with the excessively drained Adams soils, the moderately well drained Elmwood soils, and the poorly drained Swanton soils. They are near Buxton, Scantic, and Biddeford soils.

Whately fine sandy loam (0 to 3 percent slopes) (Wg).—This soil has a high water table and is saturated nearly the entire year. It is cold and wet until late in spring or early in summer. The profile is the representative one described for the series. Included in mapping were a few small areas of silt loam, a few small areas where moderately coarse textured material is less than 18 inches thick over moderately fine textured material, and small areas of mucky material 6 to 12 inches thick.

Surface runoff is very slow or ponded. Permeability is moderate in the moderately coarse textured layers and very slow in the moderately fine textured layers.

Wetness limits the use of this soil to pasture. Reed canarygrass and other moisture-tolerant plants are the only suitable pasture plants, but tile drainage makes a wider selection of forage grasses possible. Tile drainage can be used only in areas where adequate outlets are available. Tile should not be placed deeply into the clayey

substratum, because this layer is very slowly permeable. (Capability unit Vw–8; woodland group 6; wildlife group 4)

Whitman Series

The Whitman series consists of deep, very poorly drained soils that formed in glacial till of sandy loam texture. These soils are in pockets and depressions.

Whitman soils typically have a surface layer of black loam about 9 inches thick over 9 inches of gray sandy loam mottled with reddish brown. The subsoil is olive-gray sandy loam mottled with yellowish brown and dark brown. The underlying material at a depth of about 30 inches is olive-gray fine sandy loam. The content of coarse fragments increases with depth.

Representative profile of Whitman loam, 2 miles north of Minot Corner.

A1—0 to 9 inches, black (10YR 2/1) loam; weak, medium, granular structure; friable; many grass roots; 5 percent coarse fragments; medium acid; abrupt, smooth boundary. 7 to 10 inches thick.

A2g—9 to 18 inches, gray (10YR 6/1) sandy loam; few, fine and medium, prominent mottles of reddish brown (5YR 4/3) in old root channels; weak, medium, granular structure; friable; few roots; 10 percent coarse fragments; medium acid; gradual, smooth boundary. 6 to 16 inches thick.

B2g—18 to 30 inches, olive-gray (5Y 5/2) sandy loam; few, coarse, prominent mottles of yellowish brown (10YR 5/6) and dark brown (7.5YR 4/4); weak, coarse, subangular blocky structure; firm; 20 percent coarse fragments; slightly acid; clear, smooth boundary. 10 to 14 inches thick.

Cx—30 to 42 inches +, olive-gray (5Y 4/2) fine sandy loam; few, coarse, prominent mottles of dark brown (7.5YR 4/4) and light gray (5Y 7/1); massive; firm; 20 percent coarse fragments; slightly acid.

The A horizon ranges from loam to fine sandy loam in texture but is dominantly loam. The matrix color of the A1 horizon is black (10YR 2/1) when moist and gray (10YR 6/1) when dry, and that of the A2 horizon is gray with a chroma of 0 or 1. The few, if any, mottles in the A2 horizon are distinct or prominent. The B horizon ranges from fine sandy loam to loam in texture but is dominantly fine sandy loam. It ranges from olive gray (5Y 5/2) to olive (5Y 5/3) in color but is dominantly olive gray (5Y 5/2). The C horizon ranges from olive gray (5Y 4/2 or 5/2) to olive (5Y 4/3). Depth to the fragipan ranges from 18 to 30 inches. The content of coarse fragments ranges from 5 to 20 percent, and there are scattered large stones on the surface.

Whitman loam (0 to 3 percent slopes) (Wh).—This soil is in the bottom of upland depressions that have no surface outlets. The water table is within 1 foot of the surface most of the time, but in years of prolonged drought, it may be 2 feet or more below the surface. This excessive moisture keeps the soil cold until late in spring or early in summer.

Included in mapping were a few areas of mucky soil material 10 to 15 inches thick, many areas where there are large stone piles, as well as walls built of the stones that were removed from adjoining fields, and small areas of poorly drained Leicester soils around the perimeters of the depressions.

Surface runoff is slow to ponded, permeability is very slow in the substratum, and the available water capacity is high.

Wetness limits the use of this soil to pasture. Reed canarygrass and other moisture-tolerant plants are suitable pasture plants. (Capability unit Vw–4; woodland group 6; wildlife group 4)

Winooski Series

The Winooski series consists of deep, moderately well drained, nearly level to slightly depressional soils. These soils are on bottom lands, mostly in the town of Bowdoinham at the junction of the Kennebec River and Merrymeeting Bay and in small areas along the Androscoggin River.

Winooski soils typically have an 8-inch surface layer of dark grayish-brown silt loam. The underlying material is light olive-brown silt loam to a depth of 30 inches or more. This material is mottled below a depth of about 15 inches.

Representative profile of Winooski silt loam, in the southeastern corner of the town of Livermore, along the Androscoggin River.

Ap—0 to 8 inches, dark grayish-brown (10YR 4/2) silt loam, moderate, medium, granular structure; friable; many grass roots; strongly acid; clear, smooth boundary. 7 to 9 inches thick.

B21—8 to 15 inches, light olive-brown (2.5 Y 5/4) silt loam; weak, fine, granular structure; friable; few roots; strongly acid; abrupt, smooth boundary. 6 to 12 inches thick.

B22—15 to 30 inches, light olive-brown (2.5Y 5/4) silt loam; many, medium, prominent mottles of yellowish brown (10YR 5/4) and pale olive (5Y 6/3); weak, fine, granular structure; friable; strongly acid; abrupt, smooth boundary. 10 to 20 inches thick.

C—30 to 48 inches, olive-brown (2.5Y 4/4) loamy fine sand; common, medium, prominent mottles of dark yellowish brown (10YR 4/4) and gray (5Y 5/1); single grain; very friable; strongly acid.

The color of the A1 or Ap horizon has a hue of 10YR, a value of 3 or 4, and a chroma of 2 to 4. The color of the B horizon ranges from a hue of 10YR, a value of 4 or 5, and a chroma of 2 to 4 to a hue of 2.5Y, a value of 4 to 6, and a chroma of 2 or 4. The C horizon ranges from silt to loamy fine sand in texture. Below a depth of 30 inches in some places is coarse sand or gravelly sand that has thin strata of finer textured soil material. The depth to mottling ranges from 12 to 24 inches.

Winooski soils are associated with the poorly drained Limerick soils and the well-drained Hadley soils.

Winooski silt loam (0 to 3 percent slopes) (Wn).—This soil is flooded in winter and early in spring but very seldom during the growing season. It also has a seasonal high water table only 15 to 20 inches below the surface. The profile is the representative one described for the series. Included in mapping were small areas of well-drained soils, small areas in poorly drained depressions, and a few escarpments.

This soil is strongly acid and is low in natural fertility. Surface runoff is slow, permeability is moderate, and the available water capacity is high.

This soil is well suited to grass, legumes, and cultivated crops (fig. 20). Field ditches, grading, and smoothing provide drainage and thus make it possible to work the soil earlier. Other beneficial practices are the careful selection of crop varieties, a good system of crop rotation that includes cover crops and green-manure crops, and the use of crop residue. (Capability unit IIw–6; woodland group 4; wildlife group 2)

Figure 20.—Plowing a field of Winooski silt loam for corn. The trees line the bank of the Androscoggin River.

Woodbridge Series

The Woodbridge series consists of deep, moderately well drained, slightly depressional to gently sloping soils that have a firm fragipan at a depth of 16 to 30 inches. These soils are on the larger ridges in the two-county area.

Woodbridge soils typically have a 7-inch surface layer of very dark grayish-brown loam and a subsoil of dark yellowish-brown loam about 8 inches thick over olive-brown loam. Below this is a firm, brittle layer of olive fine sandy loam, locally called pin gravel.

Representative profile of Woodbridge loam, 0 to 8 percent slopes, in a pasture in the southwestern corner of the town of Turner, about 1,000 feet from the Minot town line, on the east side of the road.

Ap—0 to 7 inches, very dark grayish-brown (10YR 3/2) loam; moderate, medium, granular structure; friable; many roots; medium acid; clear, smooth boundary. 6 to 9 inches thick.

B21—7 to 15 inches, dark yellowish-brown (10YR 4/4) loam; moderate, medium, granular structure; friable; many roots; 5 percent coarse fragments; medium acid; clear, wavy boundary. 7 to 12 inches thick.

B22—15 to 20 inches, olive-brown (2.5Y 4/4) loam; many, coarse, prominent mottles of olive gray (5Y 5/2) and dark brown (7.5YR 4/4); weak, medium, platy structure; firm; 5 to 10 percent coarse fragments; clear, smooth boundary. 4 to 7 inches thick.

Cx—20 to 30 inches +, olive (5Y 4/3) fine sandy loam; many, coarse, distinct mottles of gray (5Y 6/1) and dark brown (7.5YR 4/4); strong, thick, platy structure; firm; 15 percent coarse fragments; slightly acid; structure becomes stronger and thicker with depth.

The color of the A horizon has a hue of 10YR, a value of 3 or 4, and a chroma of 2 through 4. The B21 horizon has a color hue of 10YR, a value of 4 or 5, and a chroma of 2 to 4; the B22 horizon has a hue of 2.5Y, a value of 4 or 5, and a chroma of 2 to 4; and the Cx horizon, or fragipan, is olive (5Y 4/2) to light olive brown (2.5Y 5/4). The Cx horizon ranges from sandy loam to loam in texture but is commonly fine sandy loam. The stone content ranges from 1 to 15 percent. The depth to mottling ranges from 12 to 24 inches. The depth to the fragipan ranges from 16 to 30 inches but is commonly about 20 inches.

Woodbridge soils are associated with the well-drained Paxton soils, generally at an elevation of 400 to 600 feet above sea level.

Woodbridge loam, 0 to 8 percent slopes (WrB).—This soil is in upland areas of glacial till and has a few stones on the surface and in the soil. Part of the time, it has a water table at a depth of about 15 inches. This soil is slow to drain and consequently warms up so slowly that planting has to be delayed 10 days to 2 weeks in spring. At a depth of about 20 inches, it has a firm, compact fragipan that restricts the downward movement of water and the growth of roots. The profile is the representative one described for the series. Included in mapping were a few areas that have slopes of more than 8 percent.

This soil is slightly acid or medium acid and is low in natural fertility. Surface runoff is slow or medium, and the available water capacity is high. Permeability is moderate above the fragipan and slow in it.

This soil is well suited to grass, legumes, and silage corn and to sweet corn and other vegetables.

Field ditches and smoothing and grading improve drainage and thus allow the soil to warm up more quickly so crops can be planted. Underground tile drains can be used in places where surface ditches would interfere with farming operations. Other beneficial practices are the careful selection of crop varieties, a good system of crop rotation that includes cover crops and green-manure crops, and the use of crop residue. Some stones on the surface and in the soil have to be removed before cultivation is possible. Lime and fertilizer are needed. (Capability unit IIw–4; woodland group 4; wildlife group 2)

Woodbridge very stony loam, 0 to 8 percent slopes (WsB).—This soil has a profile similar to the representative one described for the series, but the A horizon is only 2 to 3 inches thick and the B21 horizon is several inches thicker. As much as 3 percent of the surface is covered with stones, and the stone content is less than 3 percent. Included in mapping were a few small pockets of a poorly drained soil and areas that have slopes of more than 8 percent.

Surface runoff is slow, and the available water capacity is high. Permeability is moderate above the fragipan and slow in it.

This soil is well suited to all woodland trees grown commercially in the two-county area, but it is too stony for cultivated crops. It would be well suited to cultivated crops if it were cleared of stones. All of this soil is wooded. (Capability unit VIs–4; woodland group 4; wildlife group 12)

Use and Management of the Soils

This section explains the system of capability grouping used by the Soil Conservation Service and discusses the suitability of the soils in Androscoggin County and Sagadahoc County for important crops. It describes the management of these soils for engineering works, woodland, wildlife habitat, and community development and recreation. A table of estimated yields is also provided.

The use and management of individual soils for crops and pasture is discussed in the section "Descriptions of the Soils." The page where each soil is described can be found in the "Guide to Mapping Units."

The Capability Classification System

Capability classification is the grouping of soils to show, in a general way, their suitability for most kinds of

farming. It is a practical classification based on the limitations of the soils, the risk of damage when they are used, and the way they respond to treatment when used for the common field crops and pasture plants. The classification does not apply to most horticultural crops or to rice and other crops that have special requirements. The soils are classified according to degree and kind of permanent limitation but without consideration of major and generally expensive land-forming that would change the slope, depth, and other characteristics of the soils, and without consideration of possible but unlikely major reclamation projects.

In the capability system, all the kinds of soil are grouped at three levels: the capability class, the subclass, and the unit. The eight capability classes in the broadest grouping are designated by Roman numerals I through VIII. In class I are the soils that have few limitations, the widest range of use, and the least risk of damage when they are used. The soils in the other classes have progressively greater natural limitations. In class VIII are soils and landforms so rough, so shallow, or otherwise so limited that they do not produce worthwhile yields of crops, forage, or wood products.

The subclasses indicate major kinds of limitations within the classes. Within most of the classes there can be as many as four subclasses. The subclass is indicated by adding a small letter, *e*, *w*, *s*, or *c*, to the class numeral, for example, IIe. The letter *e* shows that the main limitation is risk of erosion unless close-growing plant cover is maintained; *w* means that water in or on the soil interferes with plant growth or cultivation (in some soils the wetness can be partly corrected by artificial drainage); *s* shows that the soil is limited mainly because it is shallow, droughty, or stony; and *c*, used only in some parts of the country, indicates that the chief limitation is climate that is too cold or too dry.

In class I there are no subclasses, because the soils of this class have few or no limitations. Class V can contain, at the most, only subclasses *w*, *s*, and *c*, because the soils in it are subject to little or no erosion but have other limitations that restrict their use.

Capability Units are soil groups within the subclasses. The soils in one capability unit are enough alike to be suited to the same crops and pasture plants, to require similar management, and to be similar in productivity and other responses to management. Thus, the capability unit is a convenient grouping for making many statements about the management of soils. Capability units are generally designated by adding an Arabic numeral to the subclass symbol, for example IIe–5 or IIIw–3. Thus, in one symbol, the Roman numeral designates the capability class, or degree of limitation, and the small letter indicates the subclass, or kind of limitation, as defined in the foregoing paragraphs. The Arabic numeral identifies the capability unit within the subclass.

The eight classes in the capability system and the subclasses in Androscoggin County and Sagadahoc County are described in the list that follows. The capability classification of each individual soil is given in the "Guide to Mapping Units" and can be found at the end of each mapping unit description in the section "Descriptions of the Soils."

Class I. Soils that have few limitations that restrict their use.

Class II. Soils that have some limitations that reduce the choice of plants or that require moderate conservation practices.
- Subclass IIe. Soils subject to moderate erosion if they are not protected.
- Subclass IIw. Soils that have moderate limitations because of excess water.
- Subclass IIs. Soils that have moderate limitations of moisture capacity or tilth.

Class III. Soils that have severe limitations that reduce the choice of plants, require special conservation practices, or both.
- Subclass IIIe. Soils subject to severe erosion if they are cultivated and not protected.
- Subclass IIIew. Soils that are severely limited by risk of erosion and by excess water.
- Subclass IIIes. Soils that are severely limited by risk of erosion and low moisture capacity.
- Subclass IIIw. Soils that have severe limitations because of excess water.
- Subclass IIIs. Soils that have severe limitations of moisture capacity or tilth.

Class IV. Soils that have very severe limitations that restrict the choice of plants, require very careful management, or both.
- Subclass IVe. Soils subject to very severe erosion if they are cultivated and not protected.
- Subclass IVes. Soils that have very severe limitations because of erosion, stones, and low capacity for available moisture.
- Subclass IVw. Soils that have severe limitations because of excess water.
- Subclass IVs. Soils that have very severe limitations because of stoniness, low moisture capacity, and other soil features.

Class V. Soils not likely to erode that have other limitations, impractical to remove without major reclamation, that limit their use largely to pasture, range, woodland, or wildlife food and cover.
- Subclass Vw. Soils too wet for cultivation; drainage or protection not feasible.

Class VI. Soils that have severe limitations that make them generally unsuitable for cultivation and limit their use largely to pasture or range, woodland, or wildlife food and cover.
- Subclass VIw. Soils severely limited by excess wetness and frequent flooding.
- Subclass VIs. Soils very severely limited by stones or rocks, low moisture capacity, or other soil features.

Class VII. Soils that have very severe limitations that make them unsuitable for cultivation and restrict their use largely to grazing, woodland, or wildlife.
- Subclass VIIw. Soils very severely limited by excess water.
- Subclass VIIs. Soils very severely limited by moisture capacity, stones, and other soil features.
- Subclass VIIsw. Soils extremely limited by a stony and rocky surface and by excess water.

Class VIII. Soils and landforms that have limitations that preclude their use for commercial production of plants.
Subclass VIIIw. Extremely wet or marshy land.
Subclass VIIIs. Rocks or soil materials that have little potential for production of vegetation.

Suitability of the Soils for Important Crops

The soils of Androscoggin and Sagadahoc Counties are well suited to forage crops used in dairy farming and to apple orchards. Most of the soils are medium acid to strongly acid and are low in natural fertility. More than half of the acreage is wet.

Forage crops are grown on soils that range from sandy loam to silt loam in texture and are excessively drained to poorly drained. The well drained and moderately well drained soils are suited to orchardgrass, bromegrass, timothy, red clover, and alsike clover. Among these are Charlton, Paxton, and Woodbridge soils. The poorly drained or wet soils are suited to reed canarygrass, Ladino clover, and other water-tolerant grasses and legumes. Among these are Limerick, Leicester, and Walpole soils. Excessively drained or droughty soils, such as the Adams, are fairly well suited to alfalfa, which has a deep rooting system. Soils that have high available water capacity but are sufficiently well drained to warm up early in spring are well suited to corn. Easily tilled soils that are free of rocks are most suitable for the intensive production of corn. Among these are Paxton, Hartland, and Hadley soils (*11*).

All forage crops need liberal applications of fertilizer and lime. Potash is the critical nutrient in the fertilization of alfalfa and other legumes. Nitrogen is needed on grasses and small grain. Drainage is necessary in many areas.

Soils used for apple orchards should be deep and well drained to permit the growth and development of an extensive root system. To help prevent extremely cold temperatures in winter and frost late in spring from destroying the apple buds, it is essential that orchards be located on hills or at higher elevations than surrounding soils. Drainage is needed in most areas to improve aeration. Charlton, Hartland, Hollis, Paxton, Sutton, and Woodbridge soils are suitable for apple orchards.

Estimated Yields

Estimated yields of the principal crops grown in Androscoggin and Sagadahoc Counties are shown in table 2. The estimates are based on data supplied by farmers and other agricultural workers in the counties. Estimates have not been made for soils so limited by stoniness, steepness, wetness, or frequent flooding that only a major treatment could make them suitable for farming. The A columns show what yields can be expected under the management commonly used, and the B columns what yields can be expected under improved management.

Common management is assumed to include use of a cropping system, application of lime and fertilizer, minimum control of erosion, and use of few, if any, drainage practices. It does not include irrigation.

Improved management is assumed to include use of a good cropping system, application of lime and fertilizer according to the results of soil tests, choice of suitable crop varieties, use of drainage practices where needed, and adequate control of erosion and excess water.

Engineering Uses of the Soils

Soils are of interest to engineers because they affect the construction and maintenance of roads, airports, pipelines, building foundations, facilities for water storage, erosion control structures, drainage systems, and sewage disposal systems. The soil properties most important to engineers are permeability to water, shear strength, compaction characteristics, soil drainage, shrink-swell characteristics, texture, plasticity, and pH. Topography, depth to water table, and depth to bedrock are also important.

Information in this publication can be used to—

1. Make studies that will aid in selecting and developing industrial, business, residential, and recreational sites.
2. Make preliminary evaluations of soil and ground conditions that will aid in selecting locations for highways, airports, pipelines, and cables and in planning detailed investigations at the selected locations.
3. Make preliminary estimates of soil properties that are significant in the planning of agricultural drainage systems, farm ponds, and diversion terraces.
4. Locate probable sources of sand and gravel and other construction materials.
5. Correlate performance of engineering structures with soil mapping units to develop information that will be useful in designing and maintaining engineering structures.
6. Determine the suitability of soils for cross-country movement of vehicles and construction equipment.
7. Supplement information obtained from other sources in making maps and reports that can be used readily by engineers.
8. Develop other preliminary estimates for construction purposes pertinent to the particular area.

With the use of the soil map for identification, the engineering interpretations reported here can be useful for many purposes. It should be emphasized that they do not eliminate the need for sampling and testing at the site of specific engineering works involving heavy loads and excavations deeper than the depths of layers here reported. Even in these situations, the soil map is useful for planning more detailed field investigations and for suggesting the kinds of problems that may be expected.

Some terms used in soil science—for example, soil, clay, silt, and sand—differ in meaning from the same terms used in engineering. These terms and others are defined in the Glossary.

Engineering classification systems

Most highway engineers classify soil material according to the system used by the American Association of

State Highway Officials (AASHO) (*1*, *5*). In the AASHO system, soil materials are classified in seven groups, ranging from A–1, which consists of gravelly soils having high bearing capacity, to A–7, which consists of clay soils having low bearing capacity when wet. The relative engineering value of the soils can be indicated by a group index number, which ranges from 0 for the best materials to 20 for the poorest. The group index number, if it has been determined, is shown in parentheses after the soil group symbol, for example, A–2–4(0). Highly organic soils, such as Peat and Muck, which should not be used as construction or foundation material, are not included in this classification.

Some engineers prefer to use the Unified classification system (*5*, *12*) developed by the Corps of Engineers, U.S. Army, and revised and expanded in cooperation with the Bureau of Reclamation, U.S. Department of the Interior. In this system, soil materials are identified as coarse grained (eight classes), fine grained (six classes), or highly organic (one class).

Estimated engineering properties

Table 3 shows estimates of soil properties that affect engineering significantly. Some of these estimates are based on available test data for similar soils in these and other counties and on past experience in engineering construction.

Permeability indicates the rate at which water moves through undisturbed soil material. The estimates are based largely on texture, structure, and consistence of the soils.

Available water capacity refers to the amount of capillary water held in a soil that is wet to field capacity. This amount of water added to air-dry soil will wet the soil material to a depth of 1 inch without further percolation.

Shrink-swell potential indicates the volume change to be expected with a change in moisture content. In general, soils classed as CH and A–7 have high shrink-swell potential. Clean sand and most other nonplastic soil materials have low shrink-swell potential.

The corrosion potential indicates the degree of corrosive action that the soil material has when in contact with steel or concrete.

Susceptibility to frost action is based principally on the texture of the surface layer and the subsoil and on the soil moisture available to promote frost action. Soils that have coarse texture or moderately coarse texture and only small amounts of water available at critical freezing periods are generally low in susceptibility to frost action; those that have medium texture to moderately coarse texture and moderate amounts of water are generally moderate; and those that have medium texture and sufficient water near the surface are generally high in susceptibility to frost action.

Engineering interpretations

Table 4 lists, for each soil in Androscoggin County and Sagadahoc County, interpretations of soil features that may affect suitability for specific engineering uses. These interpretations are based on the engineering test data in table 5, on the estimated soil properties in table 3, and on past experience in engineering construction in these counties and in other counties.

Following are brief explanations of the column headings in table 4.

Suitability for winter grading refers to features that permit working the soil and compacting it in winter. Soils that contain only minimum amounts of water remain friable at temperatures below freezing and can be compacted satisfactorily. Other features considered are depth to bedrock, drainage, high water table, flooding, and texture.

Suitability ratings for sources of topsoil are based upon depth of soil material, stoniness, wetness, and texture. Silt loam, very fine sandy loam, or fine sandy loam are considered ideal textures for topsoil.

Suitability ratings for sand and gravel are based upon depth of soil material and the quantity available. Fine sand and coarser textures are considered suitable. Only the sources of gravel that are large enough for commercial use have been considered.

Road fill refers to soil material that is well graded, is free of large stones, and has optimum moisture content for good compaction. Soils that contain a large amount of clay or silt or that have a high shrink-swell potential are not desirable. Other features upon which the suitability rating is based are depth to bedrock, stoniness, depth to water table, and compaction characteristics.

Among the soil features that affect highway location are depth to bedrock, depth to seasonal water table, wetness, stoniness, and frequency of flooding.

Some of the soil features that affect the construction and maintenance of pipelines are stability of the subsoil, stoniness, depth to bedrock, and wetness. Corrosivity to steel or concrete, which affects the longevity of buried pipes, depends to a great degree on moisture content.

Among the soil features that affect the selection of sites for reservoir areas of farm ponds are permeability, susceptibility to piping, texture, high water table, depth to bedrock, and stoniness.

Embankments of farm ponds are affected by the following: compaction characteristics, texture, stoniness, content of gravel, organic-matter content, susceptibility to piping, slow permeability, slight susceptibility to frost action, and erodibility.

Agricultural drainage refers to tile drainage only. Among the significant features are depth to bedrock, permeability, stoniness, and texture. "Not applicable" indicates that the soil has good drainage, or is extremely stony, or has very slow internal drainage, or lacks drainage outlets.

Irrigation refers only to overhead irrigation. Soil features that affect irrigation are water-holding capacity, intake rate, stoniness, wetness, and erodibility.

Terraces, diversions, and waterways are soil structures designed to direct and control the movement of water. The features that affect the construction and maintenance of these structures are slope, texture, drainage, erodibility, depth to bedrock, and stoniness.

Smoothing refers to mechanical leveling of the surface and generally is done to make an area suitable for farming. Only the surface layer is involved, and cuts are not more than 1 foot deep.

Grading refers to mechanical movement of soil material and may be done to make an area suitable for farming or

TABLE 2.—*Estimated average acre yields of*

[The figures in columns A indicate yields under common management; those in columns B indicate yields under improved management. the soil is

Soil	Silage corn		Sweet corn		Snap beans	
	A	B	A	B	A	B
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Adams loamy sand, 0 to 8 percent slopes		12				
Agawam fine sandy loam, 0 to 2 percent slopes	12	20	3	6	1.5	3.5
Agawam fine sandy loam, 2 to 8 percent slopes	12	20	3	6	1.5	3.5
Agawam fine sandy loam, 8 to 15 percent slopes	10	20				
Agawam fine sandy loam, 15 to 30 percent slopes						
Belgrade very fine sandy loam, 2 to 8 percent slopes	10	24	3	6	1.5	3.0
Belgrade very fine sandy loam, 8 to 15 percent slopes	10	22	2	4	1.5	2.5
Buxton silt loam, 0 to 8 percent slopes, eroded	12	20		3	1.5	3.0
Buxton silt loam, 8 to 15 percent slopes, eroded		20		3	1.5	2.5
Charlton fine sandy loam, 0 to 8 percent slopes	12	24	3	6	1.5	3.5
Charlton fine sandy loam, 8 to 15 percent slopes, eroded	12	22				
Elmwood fine sandy loam, 2 to 8 percent slopes	10	20	2	5	1.5	3.0
Elmwood fine sandy loam, 8 to 15 percent slopes, eroded		15				
Hadley silt loam	12	30	3.5	7	1.5	3.5
Hartland very fine sandy loam, 2 to 8 percent slopes	12	30	3	6	1.5	3.5
Hartland very fine sandy loam, 8 to 15 percent slopes, eroded	10	25	2	5	1.0	2.5
Hartland very fine sandy loam, 15 to 25 percent slopes, eroded						
Hinckley gravelly sandy loam, 0 to 8 percent slopes						
Hinckley gravelly sandy loam, 8 to 15 percent slopes						
Hollis fine sandy loam, 0 to 8 percent slopes		16				
Hollis fine sandy loam, 8 to 15 percent slopes		14				
Hollis fine sandy loam, 15 to 45 percent slopes						
Leicester fine sandy loam						
Limerick silt loam						
Melrose fine sandy loam, 0 to 8 percent slopes	12	30	3	6	1.5	3.5
Melrose fine sandy loam, 8 to 20 percent slopes	10	25	2	5	1.0	2.0
Merrimac fine sandy loam, 0 to 8 percent slopes	10	18	3	6	1.5	3.5
Merrimac fine sandy loam, 8 to 15 percent slopes, eroded						
Merrimac fine sandy loam, 15 to 25 percent slopes, eroded						
Ninigret fine sandy loam, 0 to 8 percent slopes	10	20	3	5	1.0	2.5
Ondawa fine sandy loam	12	30	3.5	7	1.5	3.5
Paxton loam, 2 to 8 percent slopes	12	20	3	6	1.5	3.5
Paxton loam, 8 to 15 percent slopes	10	18	2	5	1.0	2.0
Paxton loam, 15 to 25 percent slopes		16				
Paxton very stony loam, 0 to 8 percent slopes						
Paxton very stony loam, 8 to 15 percent slopes						
Podunk fine sandy loam	12	25	3	6	1.5	3.5
Scantic silt loam, 0 to 3 percent slopes						
Scarboro fine sandy loam						
Suffield silt loam, 8 to 15 percent slopes, eroded	10	20	2	4	1.5	2.5
Suffield silt loam, 15 to 30 percent slopes, eroded						
Sutton loam, 0 to 8 percent slopes	10	18	3	5	1.0	2.5
Sutton loam, 8 to 15 percent slopes	10	18		3	1.0	2.0
Sutton very stony loam, 0 to 8 percent slopes						
Sutton very stony loam, 8 to 15 percent slopes						
Swanton fine sandy loam, 0 to 3 percent slopes						
Walpole fine sandy loam						
Winooski silt loam	12	25	3	6	1.5	3.5
Woodbridge loam, 0 to 8 percent slopes	10	22	3	5	1.0	2.5
Woodbridge very stony loam, 0 to 8 percent slopes						

[1] Estimates based on yields of Katahdin variety.
[2] Estimates based on yields of MacIntosh variety.
[3] Estimates based on yields obtained the first 2 harvest seasons after seeding.
[4] Green chop is green forage that has been cut with a field chopper and hauled to lots or barns to feed the livestock in summer instead

specified crops under two levels of management

Absence of a figure indicates that the crop is not commonly grown on the particular soil, that the crop is not suited to the soil, or that not arable]

Potatoes [1]		Apples [2]		Alfalfa hay [3]		Clover-grass hay [3]		Timothy hay		Green chop [4]		Pasture	
A	B	A	B	A	B	A	B	A	B	A	B	A	B
Bu.	*Bu.*	*Bu.*	*Bu.*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*	*Cow-acre-days* [5]	*Cow-acre-days* [5]
					3.0		2.5						170
400	600			2.5	5.0	2.0	4.0	2.0	3.5	16	30	140	285
400	600			3.0	6.0	2.0	4.0	2.0	3.5	16	30	170	340
				3.0	6.0	1.5	3.5	1.5	3.0	12	25	170	340
												90	180
200	400			2.0	4.5	2.0	4.0	2.0	4.5	20	35	115	230
200	400			2.0	4.5	1.5	4.0	1.5	4.5			115	230
				1.5	3.0	2.0	3.5	2.0	4.5	12	25	115	170
				1.5	3.0	2.0	3.5	2.0	4.5			140	200
350	550	350	1,000	3.0	6.0	2.5	4.5	2.0	4.0	20	35	170	340
300	450	350	1,000	3.0	6.0	2.0	4.0	1.5	3.5	16	30	170	340
250	400			2.0	3.5	2.0	4.0	2.0	3.5	16	30	115	230
	350			2.0	3.5	1.5	3.5	1.5	3.0			115	230
400	600			3.0	6.0	2.0	4.0	2.0	4.0	20	35	140	285
350	600	350	500	2.5	5.0	2.5	4.5	2.0	4.5	20	35	140	285
300	550	350	500	3.0	5.0	2.0	4.0	1.5	4.0	16	30	170	285
												90	180
				2.0	2.5	1.0	2.0					115	145
				2.0	2.5							115	145
			450	1.5	3.0	1.0	3.0	1.0	2.0			115	200
			450	1.5	3.0	1.0	3.0	1.0	2.0			115	170
													120
						1.5	3.5	1.5	4.0			60	200
						1.5	3.5	1.5	4.0			85	200
300	500			2.5	4.0	2.0	4.0	2.0	4.0	16	30	140	285
250	450			2.5	4.0	1.5	3.5	1.5	3.5	12	25	140	285
300	400			2.5	4.0	2.0	3.0	1.5	3.0	12	25	140	230
	400			2.0	4.0	1.5	3.0	1.0	2.5	8	20	115	230
													120
300	550			2.0	3.5	2.0	4.0	1.5	3.5	16	25	115	230
400	600			3.0	5.0	2.0	4.0	2.0	4.0	20	35	140	285
300	500	500	1,000	3.0	4.5	2.5	4.5	2.0	4.0	20	35	170	255
300	500	700	1,000	3.0	4.5	2.0	4.0	1.5	3.5	16	30	170	255
			450									90	230
			750										
			900										
300	500			2.0	4.0	2.0	4.0	2.0	4.5	16	30	115	230
							3.0	1.5	4.0				
				3.0	5.0	2.0	4.0	1.5	4.0	16	25	115	230
													200
300	500	350	500	2.0	3.5	2.0	4.0	2.0	3.5	16	30	115	230
250	400	350	500	2.0	3.5	1.5	3.5	1.5	3.0			115	200
			500										
			500										
						1.0	2.5	1.0	2.5			60	140
						1.0	2.5	1.0	2.5			60	140
300	500			2.0	4.0	2.0	4.0	2.0	3.5	20	35	115	230
300	400	350	500	1.0	3.0	1.5	3.0	2.0	3.5	16	30	85	200
			500										

of pasturing them. Estimates are based on yields of oats, sudangrass, sorghum-sudangrass hybrids, and millet.

[5] Cow-acre-days is the term used to express the number of days that 1 animal unit can graze 1 acre without injury to the pasture. An animal unit is 1 cow, 1 steer, 1 horse, 5 hogs, or 7 sheep. Estimates are based on consumption of 35 pounds of dry matter a day by each animal unit.

TABLE 3.—*Estimated engineering*

[Dashed lines in the columns "Optimum moisture" and

Soil series and map symbols	Depth to—		Susceptibility to frost action	Depth from surface[1]	Classification		
	Seasonal high water table	Bedrock			USDA	Unified	AASHO
	Ft.	*Ft.*		*In.*			
Adams (AaB, AaC, AaD, AbD).	6+	4–20	Low.	0–24	Loamy fine sand	SM, SM-SP	A 2
				24–40	Fine sand	SP	A–3
Agawam (AdA, AdB, AdC, AdD).	5+	10+	Moderate.	0–37	Fine sandy loam	SM–ML	A–2, A–4
				37–43	Loamy very fine sand	SM, SP–SM	A–2
Belgrade (BgB, BgC)	1½–2	10+	High.	0–9	Very fine sandy loam	SM, ML	A–2, A–4
				9–28	Silt loam	ML, CL, SM	A–4, A–6
				28–40	Very fine sandy loam	SM–ML	A–2, A–4
Biddeford (Bo)	0	5–80+	High.	0–11	Silt loam	OL, OH, ML, MH	A–4, A–5, A–7
				11–48	Silty clay loam	ML, MH, CL, CH	A–4, A–6, A–7
Buxton (BuB2, BuC2)	1½–2	4–80+	High.	0–22	Silt loam	ML, CL	A–4, A–6, A 7
				22–48	Silty clay loam	ML, CL	A–4, A–6
Charlton (CfB, CfC2, CfD2, ChB, ChC, ChD).	4+	4+	Moderate.	0–10	Fine sandy loam	SM	A–2, A–4
				10–24	Fine sandy loam	SM	A–2, A–4
				24–40	Fine sandy loam	SP–SM, SM	A 1, A–2
Coastal beach (Ck)	1–10+	(2)	Low.	0–60	Sand	SP	A 1, A–3
Dune land (Du)	1–10+	(2)	Low.	0–60	Sand	SP–SM	A–1, A–3
Elmwood (EmB, EmC2)	1½–2	6+	High.	0–23	Fine sandy loam and sandy loam.	SM	A–2, A–4
				23–40	Silty clay loam	ML, CL	A–4, A–6
Hadley (Ha)	4+	10+	Moderate.	0–40	Silt loam or very fine sandy loam.	SM, ML	A–4
Hartland (HfB, HfC2, HfD2)	3+	6+	High.	0–10	Very fine sandy loam	ML	A–4
				10–17	Very fine sandy loam	ML, ML–CL	A–4
				17–45	Very fine sandy loam and silt loam.	ML, ML–CL	A–4
Hinckley (HkB, HkC, HkD)	5+	10+	Low.	0–4	Gravelly sandy loam	SP–SM, SM	A–1, A 2
				4–20	Gravelly loamy sand	GW, GP, GM, SW, SP, SM	A–1, A–2, A–3, A–4
				20–40	Sand and gravel	GP, GW, SP, SW	A–1, A–3
Hollis (HrB, HrC, HrD, HsB, HsC, HsD).	3+	1½	Moderate.	0–18	Sandy loam and fine sandy loam.	SM	A–2, A 4
				18	Bedrock.		
Leicester (Lc, Le)	0–1	4+	High.	0–7	Fine sandy loam	OL, SM, ML	A–4
				7–13	Fine sandy loam	SM, SC, GM	A–2, A–4
				13–40	Sandy loam	SM, SC	A–2, A–4
Limerick (Lk)	0	10+	High.	0–48	Silt loam	ML	A–4
Made land (Md, Mf)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Melrose (MeB, MeC)	5+	10+	Moderate.	0–24	Fine sandy loam	SM	A–2, A–4
				24–42	Silty clay loam	CL	A–6
Merrimac (MkB, MkC2, MkD2).	5+	10+	Low.	0–22	Fine sandy loam	SM, ML	A–2, A–4
				22–48	Sand and gravel	GP, GW, SW, SP–GP	A–1

Footnotes at end of table.

properties of the soils

"Maximum dry density" indicate that data are not available]

Fragments larger than 3 inches in diameter discarded in field sampling (estimate)	Percentage passing sieve—			Permeability	Available water capacity	Moisture-density data		Shrink-swell potential	Corrosivity to—	
	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)			Optimum moisture	Maximum dry density		Steel	Concrete
Pct.				*In./hr.*	*In./in. of soil*	*Pct.*	*Lb./cu. ft.*			
	100	95-100	10-30	>6.3	0.05-0.08	12-15	105-115	Low	Very low	High.
	100	95-100	2-5	>6.3	0.02-0.06	14-17	100-110	Low	Very low	High.
	95-100	95-100	30-55	2.0-6.3	0.13-0.17	12-16	105-115	Low	Moderate	Moderate.
	95-100	85-100	10-30	>6.3	0.08-0.12	10-15	105-115	Low	Low	Moderate.
	75-100	95-100	25-55	0.63-2.0	0.13-0.17			Low	Moderate	Moderate.
	100	100	70-90	0.63-0.20	0.19-0.25	8-18	105-115	Low	High	Moderate.
	100	100	60-80	0.20-2.0	0.14-0.25	12-16	105-115	Low	High	Moderate.
	100	100	70-95	0.63-2.0	0.20-0.28			Moderate	High	Moderate.
	100	100	85-100	<0.2	0.16-0.22	8-18	95-110	Moderate	High	Moderate.
	100	95-100	70-90	0.20-2.0	0.18-0.25	8-18	95-110	Moderate	High	Moderate.
	100	95-100	85-98	<0.20	0.16-0.20	8-18	95-110	Moderate	High	Moderate.
0-10	75-95	75-95	30-50	2.0-6.3	0.16-0.22			Low	Low	High.
0-15	80-95	70-85	15-45	0.63-2.0	0.14-0.18	10-18	100-120	Low	Low	High.
5-15	70-95	60-90	10-30	2.0-6.3	0.10-0.14	10-18	110-125	Low	Low	High.
	95-100	90-100	0-5	>6.3	0.07	9-12	100-115	Low	High	High.
	95-100	90-100	0-5	>6.3	0.01	9-12	100-115	Low	High	High.
	95-100	95-100	25-40	2.0-6.3	0.13-0.17	12-16	105-115	Low	Low	Moderate.
	100	95-100	70-95	<0.20	0.16-0.20	8-18	95-110	Moderate	High	Moderate.
	98-100	96-100	40-90	0.63-6.3	0.16-0.25	12-18	95-105	Moderate	Low	Low or moderate.
	100	90-100	60-85	0.63-2.0	0.20-0.25	10-18	100-115	Moderate	Moderate	Moderate.
	100	90-100	60-85	0.63-2.0	0.20-0.25	10-18	100-115	Moderate	Moderate	Moderate.
	100	98-100	60-85	0.20-2.0	0.20-0.25	10-18	90-110	Moderate	Moderate	Moderate.
0-35	80-90	70-80	10-30	>6.3	0.02-0.08			Low	Very low	High.
0-35	40-95	30-70	5-20	>6.3	0.02-0.08	10-15	115-125	Low	Very low	High.
10-40	30-75	30-60	0-5	>6.3	0.02-0.08	6-12	115-130	Low	Very low	High.
0-15	65-80	60-70	30-50	0.63-6.3	0.14-0.18	10-20	100-120	Low	Low	High.
0-10	80-100	75-95	35-55	0.63-6.3	0.18-0.22			Moderate	High	High.
0-15	55-90	70-85	25-40	2.0-6.3	0.14-0.18	9-15	115-130	Low	High	Moderate.
5-15	80-95	75-90	20-40	2.0-6.3	0.14-0.18	8-12	120-135	Low	High	Moderate.
0	95-100	95-100	70-80	0.63-2.0	0.18-0.25	12-20	95-110	Moderate	High	Low or moderate.
(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2).
0	95-100	90-100	25-40	0.63-6.3	0.13-0.18	8-18	95-110	Low	Moderate	Moderate.
	100	100	80-95	<0.20	0.13-0.18	8-18	95-110	Moderate	Moderate	Moderate.
0-5	95-100	60-95	25-40	2.0-6.3	0.10-0.16	10-15	110-120	Low	Moderate	Moderate.
10-25	40-65	35-55	0-5	>6.3	0.02-0.08	9-12	110-112	Low	Very low	High.

TABLE 3.—*Estimated engineering*

Soil series and map symbols	Depth to—		Susceptibility to frost action	Depth from surface [1]	Classification		
	Seasonal high water table	Bedrock			USDA	Unified	AASHO
	Ft.	*Ft.*		*In.*			
Ninigret (NgB)	1½–2	10+	Moderate.	0–17	Fine sandy loam	SM	A–2
				17–40	Loamy fine sand	SM, SP–SM	A–2
Ondawa (On)	4+	10+	Moderate.	0–30	Fine sandy loam	SM, ML	A–4
				30–48	Sand	SM, SP–SM	A–2
Paxton (PbB, PbC, PbD, PfB, PfC, PfD).	1½–2½	4+	Moderate.	0–8	Loam	SM, ML	A–2, A–4
				8–20	Fine sandy loam	SM, SC, GM	A–2, A–4
				20–42	Fine sandy loam (fragipan).	SM, SC	A–2
Peat and Muck (Pa)	0	2+	(2).	0–36	(2)	(2)	(2)
Podunk (Py)	1½–3	10+	High.	0–30	Fine sandy loam	SM	A–4
				30–42	Loamy sand	SM, SP–SM	A–2
Rock land (RhC, RhD)	(2)	(2)	Low.	(2)	(2)	(2)	(2)
Saco (Sa)	0	10+	High.	0–50	Silt loam	OL, ML	A–4
Scantic (ScA)	0–1	6+	High.	0–13	Silt loam	ML	A–4, A–6
				13–60	Silty clay and silty clay loam.	ML, ML–CH CL–CH	A–6, A–7
Scarboro (So)	0	10+	High.	0–21	Fine sandy loam and fine sand.	SM, SP–SM, SW–SM	A–1, A–2, A–3, A–4
				21–36	Fine sand and gravel	SP, GP, SM	A–1, A–2, A–3
Suffield (SuC2, SuD2)	3+	6+	Moderate.	0–24	Silt loam	ML	A–4, A–6
				24–55	Silty clay loam and silty clay.	ML, CL, ML–CL	A–6, A–7
Sutton (SxB, SxC, SyB, SyC)	1½–2	4+	Moderate.	0–16	Loam	SM	A–4
				16–30	Fine sandy loam	SM	A–2, A–4
				30–42	Sandy loam	SM	A–2
Swanton (SzA)	0–1	6+	High.	0–22	Sandy loam and fine sandy loam.	SM	A–4
				22–48	Silty clay loam, silt loam, and clay.	ML, CL	A–6, A–7
Tidal marsh (Tn)	0	5+	High.	0–60	(2)	(2)	(2)
Walpole (Wa)	0	10+	High.	0–15	Fine sandy loam	SM	A–4
				15–30	Fine sand	SM, SC	A–4
				30–60	Sand and gravel	SM, SP, GP	A–1, A–2, A–3
Whately (Wg)	0	6+	High.	0–20	Fine sandy loam	SM, ML	A–4
				20–46	Silty clay loam	ML, CL	A–6, A–7
Whitman (Wh)	0	4+	High.	0–30	Loam and sandy loam	SM, ML–CL	A–4, A–2
				30–42	Fine sandy loam	SM, ML, ML–CL	A–4
Winooski (Wn)	1½–2	10+	High.	0–30	Silt loam	ML	A–4
				30–48	Loamy fine sand	ML	A–4
Woodbridge (WrB, WsB)	1½–2½	4+	Moderate.	0–20	Loam	SM, ML–CL	A–2, A–4
				20–36	Fine sandy loam (fragipan).	SM, ML–CL	A–2, A–4

[1] Depths in representative profile. [2] Variable. No estimates available.

properties of the soils—Continued

Fragments larger than 3 inches in diameter discarded in field sampling (estimate)	Percentage passing sieve—			Permeability	Available water capacity	Moisture-density data		Shrink-swell potential	Corrosivity to—	
	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 200 (0.074 mm.)			Optimum moisture	Maximum dry density		Steel	Concrete
Pct.				*In./hr.*	*In./in. of soil*	*Pct.*	*Lb./cu. ft.*			
0	95–100	90–95	30–45	2.0–6.3	0.13–0.17	10–16	100–115	Low	High	Moderate.
	95–100	85–100	10–25	>6.3	0.02–0.08	10–15	105–115	Low	Moderate	High.
0	95–100	95–100	45–50	2.0–6.3	0.13–0.17	12–18	105–115	Low	Low	Moderate.
	95–100	70–95	15–25	2.0–6.3	0.08–0.14	5–10	105–115	Low	Low	High.
0–20	70–95	65–90	30–60	0.63–2.0	0.18–0.22			Low	Moderate	Moderate.
0–20	70–90	55–85	20–45	0.63–2.0	0.14–0.18	10–16	105–115	Low	Low	Moderate.
5–15	70–85	60–75	15–30	<0.63	0.08–0.14	9–12	115–125	Low	Low	Moderate.
(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	High	High.
	95–100	95–100	40–50	2.0–6.3	0.13–0.19	12–16	95–105	Low	Moderate	Moderate.
	85–100	60–95	10–30	>2.0	0.08–0.12	12–16	120–130	Low	Moderate	High.
(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2).
	95–100	95–100	60–90	0.63–2.0	0.18–0.28	30–50	70–85	Low	High	Moderate.
	100	100	90–95	0.20–0.63	0.18–0.30	25–40	75–95	Moderate	High	Moderate.
	100	100	90–100	<0.20	0.12–0.20	8–18	90–110	Moderate	High	Moderate.
	95–100	90–100	5–40	2.0–6.3	0.12–0.17		105–120	Low	High	High.
	95–100	90–100	2–15	>6.3	0.05–0.08	12–15	105–115	Low	High	High.
	100	95–100	60–85	0.63–2.0	0.20–0.25	8–18	95–110	Moderate	Moderate	Moderate.
	100	95–100	75–95	0.20–0.63	0.16–0.20	8–18	95–110	Moderate	Moderate	Moderate.
0–5	75–95	85–90	35–45	0.63–6.3	0.16–0.22			Low	Moderate	High.
5–15	75–95	70–85	30–45	0.63–2.0	0.14–0.18	9–18	105–115	Low	Moderate	High.
5–15	60–85	55–80	25–35	0.20–2.0	0.10–0.14	12–20	105–125	Low	Moderate	High.
	95–100	95–100	25–40	0.63–2.0	0.13–0.17	12–16	105–115	Low	High	Moderate.
	95–100	95–100	70–95	<0.20	0.16–0.20	8–18	95–110	Moderate	High	Moderate.
(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	Low to high	High	High.
0–5	90–95	85–95	35–50	0.63–6.3	0.12–0.17			Low	High	Moderate.
0–5	85–95	80–95	35–45	2.0–6.3	0.10–0.15	13–17	110–120	Low	High	High.
0–20	45–95	40–95	5–10	>6.3	0.05–0.08	10–15	100–120	Low	High	High.
	95–100	95–100	35–55	0.63–2.0	0.13–0.18			Low	High	Moderate.
	100	100	70–95	<0.2	0.13–0.18	8–18	95–110	Moderate	High	Moderate.
0–10	75–90	70–85	30–60	0.63–2.0	0.13–0.18			Low	High	High.
5–15	70–95	60–95	25–55	<0.20	0.10–0.14	8–12	120–135	Low	High	Moderate.
	98–100	98–100	55–85	0.63–2.0	0.16–0.25	12–18	95–105	Low	Moderate	Low or moderate.
	98–100	96–100	55–90	0.63–6.3	0.14–0.20	12–18	95–105	Low	Moderate	Low or moderate.
0–10	70–95	65–95	30–55	0.63–2.0	0.14–0.25	10–16	110–120	Low	Moderate	Moderate.
5–15	75–100	70–95	25–55	<0.63	0.10–0.14	9–15	115–130	Low	Moderate	Moderate.

TABLE 4.—*Engineering*

Soil series and map symbols	Suitability for winter grading	Suitability as a source of—			Soil features affecting—		
		Topsoil	Sand and gravel	Road fill	Highway location	Pipeline construction and maintenance	Farm ponds: Reservoir area
Adams (AaB, AaC, AaD, AbD).	Good	Poor	Good for fine sand; not suitable for gravel.	Fair	Stable subgrade; cut slopes erodible.	Subject to sloughing; high corrosivity to concrete.	Excessive seepage; very rapid permeability.
Agawam (AdA, AdB, AdC, AdD).	Good	Good	Fair for sand; poor for gravel.	Fair	No special problems.	Moderate corrosivity to concrete; subject to piping.	Excessive seepage; very rapid permeability.
Belgrade (BgB, BgC).	Poor	Fair	Not suitable.	Poor	Seasonal high water table; subject to frost heave; slippage.	Seasonal high water table; high corrosivity to steel.	Seasonal high water table; excessive seepage through thin lenses of silt and fine sand.
Biddeford (Bo)	Not suitable.	Poor	Not suitable.	Not suitable.	High water table; subject to frost heave; high shrink-swell potential; low shear strength; low bearing strength.[1]	High water table; high corrosivity to steel.	High water table; slow permeability.
Buxton (BuB2, BuC2).	Poor	Fair	Not suitable.	Poor	Seasonal high water table; subject to frost heave; slippage.	Seasonal high water table; high corrosivity to steel.	Seasonal high water table; very slow permeability.
Charlton (CfB, CfC2, CfD2, ChB, ChC, ChD).	Fair	Fair; poor in ChB, ChC, and ChD.	Not suitable.	Good	Seepage in deep cuts; stones in ChB, ChC, and ChD.	High corrosivity to concrete; stones in ChB, ChC, and ChD; bedrock at a depth of 4 to 10 feet.	Moderate to rapid permeability; stones in ChB, CnC, and ChD.
Coastal beach (Ck)	Good	Not suitable.	Fair for sand; not suitable for gravel.	Poor	Poor stability	High corrosivity; poor stability.	Very rapid permeability.
Dune land (Du)	Good	Not suitable.	Fair for sand; not suitable for gravel.	Poor	Poor stability	High corrosivity; poor stability.	Very rapid permeability.

See footnotes at end of table.

interpretations of the soils

Soil features affecting—Continued						
Farmponds—Con.					Land leveling	
Embankment	Agricultural drainage	Irrigation	Terraces and diversions	Waterways	Smoothing (cuts not more than 1 foot deep)	Grading (cuts more than 1 foot deep)
Poor stability on steep slope; very rapid permeability; subject to piping.	Not applicable	Very low available water capacity.	Very rapid permeability; erodibility; rolling and hilly topography; difficult to vegetate.	Very rapid permeability; erodibility; rolling and hilly topography; difficult to vegetate.	Thin surface layer; sand or loamy sand at a depth of 1½ to 2 feet; stones throughout the profile in AbD.	Thin surface layer; sand or loamy sand at a depth of 1½ to 2 feet; stones throughout the profile in AbD.
Poor stability on steep slope; very rapid permeability; subject to piping; erodibility.	Not applicable	Moderate available water capacity.	Erodibility; very rapid permeability in surface layer; sloping and steep in places.	Erodibility; very rapid permeability in surface layer.	No soil limitations.	No soil limitations.
Erodibility; poor stability; fair shear strength; subject to piping.	Seasonal high water table; moderate to slow permeability.	High available water capacity; seasonal high water table; moderate to slow permeability.	Erodibility; moderate to slow permeability.	Erodibility; excessive seepage through thin lenses of silt and fine sand.	No soil limitations.	Seasonal high water table.
Low shear strength; difficult to compact.	High water table; slow permeability; lack of outlets.	Not applicable	Not applicable	Level or nearly level topography; wetness; organic surface layer; occasional flooding.	Not applicable	Needs ditching; high water table.
Fair stability; erodibility.	Seasonal high water table; very slow permeability.	Seasonal high water table; slow intake rate; high available water capacity.	Erodibility; very slow permeability in subsoil.	Erodibility; may wash before cover is established; seepage.	No soil limitations.	Thin surface layer; claypan at a depth of 1 to 2 feet.
Good stability; moderate to rapid permeability; slow permeability when compacted; stones in ChB, ChC, and ChD.	Not applicable	Moderate available water capacity.	Stones throughout profile in ChB, ChC, and ChD.	Stones throughout profile in ChB, ChC, and ChD.	No soil limitations, except for stones in ChB, ChC, and ChD.	Stones throughout profile in ChB, ChC, and ChD.
Poor stability; very rapid permeability; hazard of soil blowing.	Not applicable	Very low available water capacity.	Not applicable	Not applicable	Not applicable	Not applicable.
Poor stability; very rapid permeability; hazard of soil blowing.	Not applicable	Very low available water capacity.	Not applicable	Not applicable	Not applicable	Not applicable.

TABLE 4.—*Engineering*

Soil series and map symbols	Suitability for winter grading	Suitability as a source of—			Soil features affecting—		
		Topsoil	Sand and gravel	Road fill	Highway location	Pipeline construction and maintenance	Farm ponds: Reservoir area
Elmwood (EmB, EmC2).	Poor	Fair	Not suitable.	Poor	Slow permeability; seepage from sand lenses in cut spots; poor stability on cut slopes; slippage; subject to frost heave.	Seasonal high water table; high corrosivity to steel.	Slow permeability in substratum; seasonal high water table.
Hadley (Ha)	Poor	Good	Not suitable.	Poor	Occasional flooding.	Occasional flooding.	Moderate permeability; occasional flooding.
Hartland (HfB, HfC2, HfD2).	Poor	Fair	Not suitable.	Poor	Subject to frost heave; slippage.	Moderate corrosivity to both steel and concrete.	Moderate permeability in substratum, which contains lenses of sand.
Hinckley (HkB, HkC, HkD).	Good	Poor	Good	Good	No special problems.	Very low corrosivity to steel, and high corrosivity to concrete.	Very rapid permeability.
Hollis (HrB, HrC, HrD, HsB, HsC, HsD).	Fair	Fair; poor in HsB, HsC, and HsD.	Not suitable.	Poor; limited amount of material; stones.	Shallow to bedrock, numerous outcrops in HsB, HsC, and HsD.	Shallow to bedrock; high corrosivity to concrete.	Shallow to bedrock.
Leicester (Lc, Le)	Not suitable.	Poor	Not suitable.	Fair	High water table; stones throughout the profile in Le.	High water table; high corrosivity; stones throughout profile in Le.	High water table; stones throughout profile in Le; moderate to rapid permeability.
Limerick (Lk)	Poor	Fair	Not suitable.	Not suitable.	High water table; frequent flooding.	High corrosivity to steel; high water table; frequent flooding.	Frequent flooding; moderate permeability.
Made land (Md, Mf).	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Melrose (MeB, MeC).	Poor or fair	Fair or good	Not suitable.	Fair or good above a depth of 3 to 4 feet and poor below.	Subject to seepage; erodibility and sloughing on cut slopes.	Moderate corrosivity to both steel and concrete.	Slow permeability in surface layer and subsoil.

See footnotes at end of table.

interpretations of the soils—Continued

Soil features affecting—Continued						
Farm ponds—Con.					Land leveling	
Embankment	Agricultural drainage	Irrigation	Terraces and diversions	Waterways	Smoothing (cuts not more than 1 foot deep)	Grading (cuts more than 1 foot deep)
Subject to piping; erodibility; fair stability.	Subject to seepage; slow permeability in substratum; seasonal high water table.	Moderately high intake rate; seasonal high water table; slow permeability.	Seepage from sand lenses; erodibility; slow permeability in substratum.	Erodibility; prolonged seepage in places.	No soil limitations.	Seasonal high water table; claypan at a depth of 18 to 30 inches.
Fair stability; subject to piping; occasional flooding.	Not applicable	Moderate intake rate; good available water capacity.	Not applicable	Occasional flooding.	No soil limitations.	No soil limitations.
Erodibility; subject to piping; fair stability.	Not applicable	High available water capacity; erodibility.	Erodibility; short steep slopes.	Erodibility	No soil limitations.	No soil limitations.
Good stability; very rapid permeability.	Not applicable	Very low available water capacity.	Rolling and hilly irregular topography; very rapid permeability.	Very low available water capacity; difficult to vegetate.	Thin topsoil	Thin surface layer; 1 foot to 1½ feet to gravel.
Shallow to bedrock; stoniness; good stability; moderate to rapid permeability.	Not applicable	Moderate to low available water capacity.	Shallow to bedrock, numerous outcrops in HsB, HsC, and HsD; low available water capacity.	Shallow to bedrock, numerous outcrops in HsB, HsC, and HsD.	Shallow to bedrock, numerous outcrops in HsB, HsC, and HsD.	Shallow to bedrock, numerous outcrops in HsB, HsC, and HsD.
High water table; good stability; stones throughout the profile in Le.	High water table; stones throughout the profile in Le.	Not applicable	High water table; stones throughout profile in Le.	High water table; excess water; seepage.	High water table	Not applicable; depressions; boulders and stones.
Frequent flooding; poor shear strength; poor stability; subject to piping.	Inadequate natural outlets; high water table; frequent flooding.	Not applicable	Not applicable	High water table; frequent flooding.	Frequent flooding.	Frequent flooding.
(2)	(2)	(2)	(2)	(2)	(2)	(2).
Fair stability; erodibility.	Not applicable	Moderate infiltration rate; moderate available water capacity.	Erodibility in surface layer; slow permeability between depths of 30 and 40 inches.	Erodibility in surface layer; seepage between sand and clay.	No soil limitations.	Clay substratum at a depth of 1½ to 2½ feet.

TABLE 4.—*Engineering*

Soil series and map symbols	Suitability for winter grading	Suitability as a source of—			Soil features affecting—		
		Topsoil	Sand and gravel	Road fill	Highway location	Pipeline construction and maintenance	Farm ponds: Reservoir area
Merrimac (MkB, MkC2, MkD2).	Good	Fair	Good	Good	No special problems.	Very low corrosivity to steel, and high corrosivity to concrete.	Rapid permeability.
Ninigret (NgB)	Fair	Good	Fair for sand, poor for gravel.	Good	Seasonal high water table.	Good stability; moderately rapid permeability; erodibility; subject to piping; high corrosivity to concrete.	Excessive seepage.
Ondawa (On)	Fair; occasional flooding.	Good	Fair for sand; poor for gravel.	Fair	Occasional flooding.	Occasional flooding.	Occasional flooding; moderately rapid permeability.
Paxton (PbB, PbC, PbD, PfB, PfC, PfD).	Fair	Good; poor in PfB, PfC, and PfD.	Not suitable.	Fair	Seepage in deep cuts; stones throughout profile in PfB, PfC, and PfD.	Moderate corrosivity to concrete; stones throughout profile in PfB, PfC, and PfD.	Slow permeability in compact layer.
Peat and Muck (Pa)	[2]	[2]	[2]	[2]	[2]	[2]	[2]
Podunk (Py)	Fair	Good	Fair for sand; poor for gravel.	Fair	Occasional flooding; seasonal high water table.	Occasional flooding; seasonal high water table; moderate corrosivity to steel, high corrosivity to concrete.	Occasional flooding; moderate permeability.
Rock land (RnC, RhD).	Not suitable.	Not suitable.	Not suitable.	Not suitable.	Shallow to bedrock.	Shallow to bedrock.	Shallow to bedrock.
Saco (Sa)	Not suitable.	Poor	Not suitable.	Not suitable.	High water table; frequent flooding.	High water table; high corrosivity to steel; frequent flooding.	Frequent flooding; high water table.
Scantic (ScA)	Poor	Poor	Not suitable.	Poor	High water table; seepage; sloughing; compressibility.	High water table; high corrosivity to steel.	High water table; slow permeability.
Scarboro (So)	Poor	Poor	Poor	Poor	High water table; subject to frost heave.	High water table; high corrosivity to both steel and concrete.	Rapid permeability; high water table.

See footnotes at end of table.

interpretations of the soils—Continued

Soil features affecting—Continued						
Farm ponds—Con.					Land leveling	
Embankment	Agricultural drainage	Irrigation	Terraces and diversions	Waterways	Smoothing (cuts not more than 1 foot deep)	Grading (cuts more than 1 foot deep)
Good stability; rapid permeability.	Not applicable	Moderate available water capacity above gravel layer.	Erodibility in surface layer; loose consistence, very rapid permeability in substratum.	Erodibility; droughtiness.	No soil limitations.	Substratum of gravel at a depth of 2 feet.
Good stability; moderately rapid permeability; erodibility; subject to piping.	Seasonal high water table; moderately rapid permeability.	Moderate available water capacity.	Seepage in places.	Erodibility; seepage in places.	No soil limitations.	High water table; thin surface layer.
Fair stability; subject to piping.	Not applicable	Moderate infiltration rate; high available water capacity.	Not applicable	Occasional flooding.	No soil limitations.	Coarse sand in substratum; occasional flooding.
Good stability; stones throughout profile in PfB, PfC, and PfD.	Seepage along top of compact layer.	Moderate to high available water capacity.	Seepage along top of compact layer; stones throughout profile in PfB, PfC, and PfD.	Seepage in places; erodibility.	No soil limitations, except stones throughout profile in PfB, PfC, and PfD.	Fragipan at a depth of 1½ feet; thin surface layer; stones throughout profile in PfB, PfC, and PfD.
[2]	[2]	[2]	[2]	[2]	[2]	[2]
Fair stability; subject to piping.	Seasonal high water table; occasional flooding.	Moderate intake rate; good available water capacity; seasonal high water table.	Not applicable	Occasional flooding.	No soil limitations.	Seasonal high water table.
Shallow to bedrock.	Not applicable	Shallow to bedrock.	Shallow to bedrock, which crops out in many places.	Shallow to bedrock, which crops out in many places.	Shallow to bedrock.	Shallow to bedrock.
Difficult to compact; frequent flooding.	High water table; frequent flooding; lack of outlets.	Not applicable	Not applicable	High water table; frequent flooding.	Frequent flooding.	Frequent flooding; high water table.
Low shear strength.	High water table; slow permeability; lack of outlets.	Not applicable	Shallow to clayey substratum; seepage.	Erodibility; seepage.	High water table.	Claypan at a depth of 1½ feet.
Rapid permeability; fair shear strength; wet.	High water table; sloughing; rapid permeability.	High water table; not generally irrigated.	Not applicable	High water table.	High water table.	High water table; shallow surface layer.

TABLE 4.—*Engineering*

Soil series and map symbols	Suitability for winter grading	Suitability as a source of—			Soil features affecting—		
		Topsoil	Sand and gravel	Road fill	Highway location	Pipeline construction and maintenance	Farm ponds: Reservoir area
Suffield (SuC2, SuD2).	Poor	Fair	Not suitable.	Poor	Erodibility of cut slopes; sloughing.	Moderate corrosivity to both steel and concrete.	Slow permeability.
Sutton (SxB, SxC, SyB, SyC).	Poor	Fair; poor in SyB and SyC.	Not suitable.	Fair	Seasonal high water table; stones throughout profile in SyB and SyC.	Seasonal high water table; stones throughout profile in SyB and SyC.	Seasonal high water table; stones throughout profile in SyB and SyC.
Swanton (SzA)	Poor	Poor	Not suitable.	Not suitable.	High water table; subject to frost heave; low shear strength.	High water table; high corrosivity to steel.	High water table; slow permeability.
Tidal marsh (Tn)	Not suitable.	Not suitable; salinity.	Not suitable.	Not suitable.	Salinity; flooding at high tide; differential settling.	Flooding at high tide; salinity; differential settling; high corrosivity to both steel and concrete.	Poor stability; salinity.
Walpole (Wa)	Poor	Poor	Poor	Poor	High water table; subject to frost heave.	High water table; high corrosivity.	Rapid or very rapid permeability; excessive seepage; high water table.
Whately (Wg)	Poor	Poor	Not suitable.	Not suitable.	High water table; subject to frost heave; high shrink-swell potential; low shear strength.	High water table; high corrosivity to steel.	High water table; slow permeability.
Whitman (Wh)	Not suitable.	Poor	Not suitable.	Poor	High water table.	High water table; high corrosivity.	High water table; fragipan; very slow permeability.
Winooski (Wn)	Poor	Good	Not suitable.	Fair	Occasional flooding; seasonal high water table.	Occasional flooding; seasonal high water table; moderate corrosivity.	High water table; occasional flooding; moderate permeability.
Woodbridge (WrB, WsB).	Poor	Good; poor in WsB.	Not suitable.	Fair	Seasonal high water table; seepage and slides along compact layer; stones in WsB.	Seasonal high water table; moderate corrosivity.	Seasonal high water table; slow permeability.

[1] Engineers and others should not apply specific values to estimated bearing strength.
[2] No valid interpretation can be made; requires onsite investigation.

interpretations of the soils—Continued

Soil features affecting—Continued						
Farm ponds—Con.					Land leveling	
Embankment	Agricultural drainage	Irrigation	Terraces and diversions	Waterways	Smoothing (cuts not more than 1 foot deep)	Grading (cuts more than 1 foot deep)
Erodibility; fair stability.	Not applicable	Slow intake rate; good available water capacity.	Undulating and rolling topography; erodibility.	Erodibility	Slight soil limitations.	Claypan at a depth of 2 to 5 feet.
Good stability; seasonal high water table; stones throughout profile in SyB and SyC.	Seasonal high water table; seepage; stones throughout profile in SyB and SyC.	Seasonal high water table; moderate available water capacity.	Stones throughout profile in SyB and SyC; seepage.	Stones throughout profile in SyB and SyC; seepage.	Moderate soil limitations; stones in SyB and SyC.	Seasonal high water table; stones in SyB and SyC; seepage.
Low shear strength.	High water table; slow permeability; lack of outlets.	Not applicable	Not applicable	High water table.	High water table.	High water table; claypan at depths between 1½ and 2 feet.
Difficult to compact; poor stability; shrinkage.	Flooding at high tide; salinity; lack of outlets.	Not applicable	Not applicable	Not applicable	Flooding at high tide.	Flooding at high tide.
Rapid or very rapid permeability.	High water table; seepage; rapid or very rapid permeability.	High water table; moderate available water capacity.	Not applicable	High water table.	High water table.	High water table; thin surface layer.
Low shear strength.	High water table; slow permeability; lack of outlets.	Not applicable	Not applicable	High water table.	High water table.	High water table; thin surface layer.
High water table; fair shear strength; difficult to compact.	High water table; very slow permeability; fragipan.	Not applicable	Not applicable	High water table.	High water table.	High water table.
Low shear strength; poor stability; subject to piping.	Seasonal high water table; occasional flooding.	Moderate intake rate; good available water capacity.	Not applicable	Occasional flooding.	No soil limitations.	Seasonal high water table; occasional flooding.
Seasonal high water table; stones in WsB; good stability.	Seasonal high water table; seepage on top of compact layer; stones in WsB.	Seasonal high water table; slow permeability.	Seasonal high water table; seepage on top of compact layer; stones in WsB.	Seasonal high water table; seepage on top of compact layer; stones in WsB.	Moderate limitations; stones in WsB; depth to compact layer is 1½ feet.	Seasonal high water table; depth to compact layer is 1½ feet; stones in WsB.

TABLE 5.—*Engineering*

[Tests performed by the Maine State Highway Commission in cooperation with the U.S. Department of Commerce, Bureau of

Soil name and location	Parent material	Maine report No. S-63-Me-1	Depth from surface	Moisture-density data [1]	
				Maximum dry density	Optimum moisture
			In.	*Lb. per cu. ft.*	*Pct.*
Charlton fine sandy loam:					
Dillingham Hill, east side of road about 500 feet north of Auburn-Turner town line (modal).	Glacial till, consisting mostly of schistose material.	17-1	9-27	114	14
		17-2	27-48	123	10
On Woodbury Hill road, 1 mile north of Danville Junction (slightly finer textured than modal).	Glacial till, consisting mostly of schistose material.	18-1	8-20	103	18
		18-2	20-48	120	12
Charlton very stony fine sandy loam:					
On west side of State Rte. 4, 3 miles south of North Turner.	Glacial till, consisting mostly of schistose material.	16-1	14-26	121	12
		16-2	26-48	119	13
Hartland very fine sandy loam:					
On Soper Mill road, 1.5 miles south of State Rte. 136 (modal).	Lacustrine sediments	19-1	16-34	112	16
		19 2	34-60	102	15
3 miles north of Lisbon Falls Post Office, on State Rte. 125.	Lacustrine sediments	20-1	11-30	111	16
		20-2	30-48	109	16
Hinckley gravelly sandy loam:					
Turner gravel pit on Upper Street, 1 mile west of State Rte. 4.	Glacial outwash	4-1	6-26	118	14
		4 2	26-60	111	13
Gravel pit along State Rte. 106, 2.5 miles north of U.S. Rte. 202.	Glacial outwash	5-1	6-16	108	15
		5-2	16-60	120	9
Lewiston gravel pit at Lisbon village along State Rte. 196 (finer textured surface layer than modal).	Glacial outwash	6-1	3-14	103	17
		6-2	14-48	113	12
Merrimac fine sandy loam:					
Roadbank on Upper Street in South Turner, 1 mile west of State Rte. 4 (modal).	Glacial outwash	7-1	8-24	109	14
		7-2	24-48	120	11
East of Livermore Falls, 0.25 mile north of State Rte. 17 (fine gravel substratum).	Glacial outwash	8-1	8-27	119	12
		8 2	27-48	114	12
About 1 mile northeast of Livermore Center on west bank of Androscoggin River.	Glacial outwash	9-1	9-20	112	15
		9-2	20-48	119	10
Paxton loam:					
Road cut on Upper Street in South Turner, 1 mile from State Rte. 4 (modal).	Glacial till, material derived from schist.	10-1	8-26	110	11
		10 2	26 60	122	13
2 miles west of Rte. 119, at a point 1 mile north of Hackett Mills.	Glacial till, consisting largely of schistose material.	11-1	7-26	107	16
		11-2	26-48	121	12
Paxton very stony loam:					
On Webster Street in Lewiston, in borrow pit 1 mile west of Maine Turnpike.	Glacial till, material derived from schist.	12-1	10-19	108	17
		12-2	19-60	119	11
Scarboro fine sandy loam:					
On Davis Road in town of Durham, 3 miles south of State Rte. 136 (modal).	Outwash sands	14-1	8-26	109	14
		14-2	26-48	104	15
East side of Garfield Road, along Hodgkins Brook (now called Leicester very stony fine sandy loam).	Outwash sands	13-1	4-21	118	13
		13 2	21-48	112	14
On State Rte. 11, north side of road, 2 miles west of Hackett Mills (more sandy than modal).	Outwash sands	15-1	0-10	112	12
		15-2	10-48	111	12

[1] Based on AASHO Designation: T 99-57, Method D (*1*).

[2] Mechanical analyses according to AASHO Designation T 88 (*1*). Results by this procedure may differ somewhat from results obtained by the soil survey procedure of the Soil Conservation Service (SCS). In the AASHO procedure, the fine material is analyzed by the hydrometer method and the various grain-size fractions are calculated on the basis of all the material, including that coarser than 2 millimeters in diameter. In the SCS soil survey procedure, the fine material is analyzed by the pipette method, and the material coarser than

test data

Public Roads, in accordance with standard procedures of the American Association of State Highway Officials (AASHO) (*1*)]

Discarded in field sampling (estimate) larger than 3 in.	Mechanical analysis [2] Percentage passing sieve— 3-in.	¾-in.	No. 4 (4.7 mm.)	No. 10 (2.0 mm.)	No. 40 (0.42 mm.)	No. 200 (0.074 mm.)	Percentage smaller than— 0.05 mm.	0.02 mm.	0.005 mm.	0.002 mm.	Liquid limit	Plasticity index	Classification AASHO	Unified [3]
Pct.														
5	100	98	91	86	69	28	22	6			(4)	(4)	A–2–4(0)	SM
5	100	98	93	89	64	25	18	6	1		16	0	A–2–4(0)	SM
5	100	91	85	82	71	46	40	11	1		38	12	A–6(3)	SM–SC
5	100	93	86	80	57	23	18	8	1		(4)	(4)	A 2 4(0)	SM
10	100	94	85	76	56	16	13	5	1		(4)	(4)	A–2–4(0)	SM
10	100	89	72	63	44	19	16	8	1		(4)	(4)	A–1–b(0)	SM
			100	98	93	82	73	39	13	8	26	5	A 4(8)	ML–CL
				100	98	67	42	8	1		(4)	(4)	A–4(6)	ML
		100	99	98	92	60	49	16	1		(4)	(4)	A–4(5)	ML
				100	99	67	53	20	2	1	(4)	(4)	A–4(6)	ML
20	100	61	41	30	11	3	2	1			(4)	(4)	A–1–a(0)	GW
5	100	90	75	64	18	1					(4)	(4)	A–1–b(0)	SP
	100	98	96	96	92	18	12	1			(4)	(4)	A–2–4(0)	SM
50	100	56	39	31	6	2	1				(4)	(4)	A–1–a(0)	GP
5	100	89	86	83	74	55	39	5	2	1	(4)	(4)	A–4(4)	ML
15	100	88	77	67	17	1					(4)	(4)	A–1 b(0)	SP
		100	98	97	85	33	26	9	1		(4)	(4)	A–2–4(0)	SM
5	100	63	42	35	7	1					(4)	(4)	A–1–a(0)	GW
		100	99	96	60	32	26	11	1		32	10	A–2 4(0)	SM SC
	100	99	92	85	13	2	1				(4)	(4)	A–1–b(0)	SP
		100	98	95	84	70	65	43	10	4	25	4	A–4(7)	ML–CL
5	100	96	72	48	12	1					(4)	(4)	A–1–a(0)	SW
5	100	97	92	87	68	29	26	13	3	1	(4)	(4)	A 2 4(0)	SM
5	100	96	86	74	47	17	15	9	4	2	(4)	(4)	A–1–b(0)	SM
5	100	90	78	71	55	27	22	10	1		29	1	A–2–4(0)	SM
10	100	93	60	50	35	15	13	8	2	1	(4)	(4)	A–1–b(0)	SM
10	100	82	73	68	48	22	18	6			(4)	(4)	A–1–b(0)	SM
15	100	94	82	67	41	12	10	5	1		(4)	(4)	A–1–b(0)	SW–SM
				100	99	30	22	6			(4)	(4)	A–2–4(0)	SM
				100	99	13	7	1			(4)	(4)	A–2–4(0)	SM
			98	92	68	14	9	2			(4)	(4)	A 2 4(0)	SM
		100	96	94	64	7	2				(4)	(4)	A–3(0)	SP–SM
				100	66	6	4	1			(4)	(4)	A–3(0)	SP–SM
			100	98	41	2					(4)	(4)	A–1–b(0)	SP

2 millimeters in diameter is excluded from calculations of grain-size fractions. The mechanical analysis data used in this table are not suitable for use in naming textural classes for soil.

[3] SCS and BPR have agreed that all soils having plasticity indexes within 2 points of the A-line are to be given a borderline classification. Examples of borderline classifications obtained by this use are ML–CL, SM–SC, and SW–SM.

[4] Nonplastic.

for other purposes. Cuts have to be so deep that they expose the subsoil and substratum.

Engineering test data

To help evaluate the soils in Androscoggin and Sagadahoc Counties for engineering purposes, 17 samples of soils were tested according to standard procedures. The results are given in table 5, page 54.

Moisture-density data are obtained by compacting soil material at successively higher moisture content. Assuming that the compactive effort remains constant, the density of the compacted material increases until the optimum moisture content is reached. After that, the density decreases with increase in moisture content. The highest dry density obtained in the compaction test is termed "maximum dry density." Moisture-density data are important in earthwork because, as a rule, optimum stability is obtained if the soil is compacted to about the maximum dry density when it is at approximately the optimum moisture content.

The tests for plastic limit and liquid limit measure the effect of water on the consistence of soil material. As the moisture content of a clayey soil increases from a very dry state, the material changes from semisolid to plastic. As the moisture content is further increased, the material changes from plastic to liquid; the moisture content at which this occurs is the liquid limit. The plasticity index is the numerical difference between the liquid limit and the plastic limit. It indicates the range of moisture content within which a soil material is plastic.

Use of the Soils for Woodland[3]

Timber is the most important resource in this two-county area. The bulk of the wood now harvested is cut in 4-foot bolts and is used by the pulp and paper industry. There are five pulp and paper mills within easy hauling distance, and much of the wood produced in these two counties is used by these companies.

Forest types

Two forest types—the spruce-fir-pine type and the pine-oak type—are dominant east and south of the confluence of the Kennebec and Androscoggin Rivers in Sagadahoc County. Red spruce, balsam fir, and white pine are prevalent on the shallow soils and exposed bedrock along the coast. White pine occurs as pure stands and as individual trees and makes up a large percentage of the total volume. It maintains itself readily because of the slow early growth of red spruce and the lack of competition from hardwoods.

Stands of pine, red oak, red spruce, balsam fir, and red maple, and scattered white birch are common farther inland.

Mixed hardwoods, sugar maple, red maple, beech, and ash are prevalent west of the Kennebec River particularly on the well-drained till soils and the associated upland soils. The stands are interspersed with hemlock, white birch, and white pine. White pine occurs as pure stands on farmland that has reverted to woodland and also grows well on the sandy and gravelly soils in the valley of the Androscoggin River where competition from hardwoods is not severe. White birch is an important component of most hardwood stands, particularly those that originated from previous clear cuttings or from old burns. Hemlock also maintains itself in hardwood stands. It occurs in areas that have never been cleared for farming.

Woodland groups

Management of woodland can be planned more effectively if soils are grouped according to those characteristics that affect growth of trees and management of the stands. The soils of Androscoggin County and Sagadahoc County have been assigned to eight woodland groups. Each group consists of soils that are suited to the same kinds of trees, that need the same management, and that have about the same potential productivity.

Following are explanations of soil-related hazards and limitations that were among the factors considered in assigning each soil to a woodland group.

Equipment limitations result from soil characteristics and topographic features that restrict or prohibit the use of conventional equipment for planting and harvesting wood crops. The limitation is slight if there are no restrictions on the type of equipment that can be used or on the time of year that the equipment can be used. The limitation is moderate if the use of equipment is restricted by seasonal wetness that lasts no more than 3 months or if the use of equipment damages tree roots to some extent. The limitation is severe if the use of equipment is restricted by wetness that lasts more than 3 months or if the use of equipment causes severe damage to tree roots.

Seedling mortality refers to the expected loss of naturally occurring seedlings or planted seedlings as a result of unfavorable soil characteristics. Mortality is slight if the loss is less than 25 percent. It is moderate if the loss is between 25 and 50 percent. Mortality is severe if more than 50 percent of the seedlings die.

Windthrow hazard, or the danger of trees being blown over by the wind, is slight if roots extend to a considerable depth so that individual trees are stable during high winds. The hazard is moderate if trees are stable except during periods of excessive wetness and high winds. It is severe if root development is restricted and individual trees are unstable during periods of wetness and of moderate or high winds.

Each of the eight woodland groups in Androscoggin and Sagadahoc Counties is described on the pages that follow. The names of the soil series represented are mentioned in the description of each group, but this does not mean that all the soils of a given series are in the unit. To find the woodland classification for any given soil, refer to the "Guide to Mapping Units."

WOODLAND GROUP 1

This group consists of well-drained to excessively drained, sandy, loamy, and gravelly soils of the Adams, Hinckley, and Merrimac series. Although droughty, these soils provide enough moisture for maximum growth of trees in spring and early in summer.

Equipment for harvesting timber and building roads can be used in all weather. Windthrow is not a hazard for most trees, because roots can spread and penetrate the

[3] Prepared by WILLIAM ADAMS and CLIFF FOSTER, Maine Forest Service.

soil readily. Seedling mortality may be significant because of droughtiness during critical growth periods.

These soils provide some good sites for red pine and white pine. Limitations for planting red pine are few. For white pine, the sites having the most favorable texture, slope, and aspect should be chosen. For white spruce and Norway spruce, the hazards are generally severe.

WOODLAND GROUP 2

This group consists of well-drained, nonrocky soils of the Hollis series. These soils are only 10 to 20 inches deep over bedrock. Consequently, the root zone is shallow, and the available water capacity is limited.

The limitations on the use of equipment and those on building roads are slight on soils that have slopes of 0 to 15 percent and moderate on soils that have slopes of more than 15 percent. Seedling mortality is severe because the surface layer is droughty at critical periods. Windthrow is a moderate hazard because root growth is limited. Forest stands on these soils are generally less fully stocked than stands on deeper soils where more moisture is available and roots penetrate to a greater depth.

These soils are poor sites for red pine and northern hardwoods because they are droughty and shallow. They are fair to poor for white pine, Norway spruce, and white spruce.

WOODLAND GROUP 3

This group consists of deep, well-drained, medium-textured and moderately coarse textured soils of the Agawam, Charlton, Hadley, Hartland, Melrose, Ondawa, Paxton, and Suffield series. These soils provide optimum growing conditions for trees. They have a high available water capacity and a deep root zone.

Where the slope is more than 15 percent, the Agawam, Hartland, and Suffield soils are very unstable and are very easily eroded when cuts or fills are made for roads, trails, and landings. Except for the erosion hazard on steep soils, the limitations on the use of logging equipment and those on building roads are slight. Seedling mortality is slight, and the windthrow hazard is slight.

The Hadley, Hartland, and Paxton soils are good sites for white pine, red pine, fir, spruce, and northern hardwoods, and the other soils in this group are fair sites for the same species.

WOODLAND GROUP 4

This group consists of moderately well drained soils of the Belgrade, Buxton, Elmwood, Ninigret, Podunk, Sutton, Winooski, and Woodbridge series. These soils have a high available water capacity, but the roots of some kinds of trees are restricted by a seasonal high water table or a firm pan, both 18 to 24 inches below the surface. The Belgrade and Buxton soils are subject to frost heaving. The Podunk and Winooski soils are flooded periodically.

The seasonal high water table and moderate to high susceptibility to frost action are limitations for building the roads needed for woodland operations. A thicker than average, coarse subbase and more than the usual number of drains are essential for roads that are to be used in all weather. The limitations on the use of equipment are slight. Generally, seedling mortality is slight, but on Belgrade and Buxton soils, it is moderate because of the local frost heaving. The windthrow hazard is slight.

These soils are good sites for white pine, spruce, fir, and northern hardwoods. Except for frost heaving, they have few limitations for white pine, Norway spruce, and white spruce. Red pine is likely to make slow growth during middle age because of the restricted root zone. Mixed stands of hardwoods and softwoods are common. All native trees grow rapidly if there is enough room for the roots.

WOODLAND GROUP 5

This group consists of poorly drained, medium-textured and moderately coarse textured soils of the Leicester, Limerick, Swanton, and Walpole series. These soils are too wet for most trees. The water table is near the surface. In addition, the Limerick soils are flooded nearly every year.

The limitations for building woodland roads are severe. Because of wetness and the risk of frost action, an extra thick subbase and numerous drains are needed. Maintaining the roads is difficult also. Even during dry periods the limitations on the use of equipment are moderate because of poor drainage and the high water table. During wet periods the boglike conditions make the limitations severe. Seedling mortality is severe because of prolonged wetness and frost heaving. The windthrow hazard is severe because of the shallow root zone.

These soils are fair sites for white pine, white spruce, fir, and northern hardwoods. They are poor for red pine and Norway spruce because of the high water table and the shallow root zone. If trees are to be established on these soils, they should be spot planted on the knolls and hummocks.

WOODLAND GROUP 6

This group consists of medium-textured, poorly drained and very poorly drained soils of the Biddeford, Saco, Scantic, Scarboro, Whately, and Whitman series. These soils lie in the lowest areas in the terrain and are excessively wet for long periods. They also have a very high water table. The Saco soils are frequently flooded. All of these soils are susceptible to frost action. They generally support a dense mat of sedges, grasses, cattails, and other water-tolerant plants, as well as dogwood, viburnum, highbush blueberry, highbush cranberry, black alder, laurel, Canada yew, willow, and other shrubs and low-growing trees. The surface layer is very high in organic-matter content.

The very high water table, the very high organic-matter content, and frequent flooding make construction and maintenance of roads very difficult. There is a limitation on the use of equipment in winter because the soils freeze only slightly, even in the coldest winters. Seedling mortality and the windthrow hazard are severe because of wetness and shallowness.

These soils are poor sites for red pine, Norway spruce, and northern hardwoods. In fact, red pine and Norway spruce should not be planted. The soils are also poor sites for trees that are more tolerant of wetness, such as white pine, white spruce, and fir. The excessive wetness and the high water table, however, make it difficult to establish white pine and white spruce seedlings. Trees have to be

hand planted. The dryer spots should be selected for planting. Trees planted on the mounds have the best chance of survival.

WOODLAND GROUP 7

This group consists of very rocky, very shallow soils of the Hollis series. These soils have severe limitations for planting and growing trees. They are shallow, and they have very low available water capacity.

Building the roads needed for woodland operations is difficult because of the rock outcrops. The limitations on the use of equipment are severe because of the outcrops and steep slopes. Seedling mortality is severe because of the very low available water capacity. The windthrow hazard is severe because of shallowness.

These soils make poor sites for white pine, spruce, fir, red pine, and northern hardwoods. The limitations are severe for the survival of all planted stock. Trees have to be hand planted in the deep pockets between the rock outcrops. Onsite determination is needed in each area to determine the most favorable deep pockets for planting.

WOODLAND GROUP 8

This group consists of Coastal beach, Dune land, Made land, Peat and Muck, Rock land, and Tidal marsh. Peat and Muck are organic soils, but the other mapping units are land types that rarely support commercial woodland. Onsite determination is needed before trees are planted.

Wildlife

This section discusses the relationship of soils to wildlife from two points of view: The capacity of particular soils to produce the elements of particular kinds of wildlife habitat, and the geographical distribution of wildlife food and cover, as affected by farming and other uses of the soils, in relation to the five soil associations.

Wildlife groups

The soils of the two counties have been placed in 14 groups that reflect capacity to provide the elements of wildlife habitat. Table 6 shows which soils are in each of these groups and indicates the relative suitability of

TABLE 6.—*Suitability for elements of wildlife habitat and kinds of wildlife*

[1=good (above average); 2=fair (average); 3=poor (below average); 4=not suitable]

Wildlife group and map symbols	Elements of wildlife habitat							Kinds of wildlife	
	Grasses and legumes	Wild herbaceous upland plants	Upland hardwood woody plants	Upland coniferous woody plants	Lowland coniferous woody plants	Wetland food and cover plants	Shallow impoundments and excavated ponds	Woodland	Wetland
Group 1 AdA, AdB, AdC, BgC, BuC2, CfB, CfC2, EmC2, Ha, HfB, HfC2, MeB, MeC, MkB, MkC2, On, PbB, PbC, SuC2, SxC.	1	1	1	2	4	4	4	1	4
Group 2 BgB, BuB2, EmB, NgB, Py, SxB, Wn, WrB.	1	1	1	3	3	3	3	1	3
Group 3 Lc, ScA, SzA, Wa.	2	2	1	2	2	1	1	1	2
Group 4 Bo, So, Wg, Wh.	3	3	1	2	1	1	1	1	1
Group 5 AaB, AaC, HkB, HkC.	3	3	3	1	4	4	4	3	4
Group 6 HrB, HrC.	2	2	2	2	4	4	4	2	4
Group 7 ChB, ChC, PfB, PfC.	3	1	2	2	4	4	4	2	4
Group 8 AaD, AbD, ChD, HkD, HrD, HsB, HsC, HsD, PfD.	4	2	2	2	4	4	4	2	4
Group 9 Lk.	3	3	1	1	1	1	4	1	3
Group 10 AdD, CfD2, HfD2, MkD2, PbD, SuD2.	2	1	1	3	4	4	4	1	4
Group 11 Le.	3	3	1	1	1	1	2	1	1
Group 12 SyB, SyC, WsB.	3	1	2	2	1	4	4	2	4
Group 13 Ck, Du, Md, Mf, RhC, RhD.	4	4	4	4	4	1	3	4	2
Group 14 Pa, Sa, Tn.	4	4	4	4	4	1	3	4	2

the soils of each group for seven categories of wildlife food and cover plants and for two classes of wildlife. The column headings in this table are explained in the following paragraphs.

"Grasses and legumes" refers to domestic perennial grasses and herbaceous legumes that have been established by planting and that furnish food and cover to wildlife. The grasses include fescue, bromegrass, bluegrass, timothy, redtop, orchardgrass, and canarygrass. The legumes include clover and other trefoils and alfalfa.

"Wild herbaceous upland plants" refers to native or introduced perennial grasses and forbs, or weeds, that provide food and cover. These include bluestem, indiangrass, wheatgrass, strawberry, beggarweed, wild bean, nightshade, goldenrod, and dandelion.

"Upland hardwood woody plants" refers to nonconiferous trees, shrubs, and woody vines that produce fruits, nuts, buds, catkins, twigs, or foliage used extensively as food by wildlife. These plants commonly have become established through natural processes but may have been planted. They include oak, beech, cherry, hawthorn, dogwood, viburnum, maple, birch, poplar, blueberry, brier, and rose.

"Coniferous woody plants" refers to cone-bearing trees and shrubs that are of importance in the wildlife habitat mainly as cover but may furnish food in the form of browse (twigs) and seeds or fruitlike cones. These plants commonly have become established through natural processes but may have been planted. Those on uplands include pine, spruce, balsam fir, hemlock, and juniper. Those on lowlands include larch (tamarack), white-cedar, yew, black spruce, balsam fir, and hemlock.

"Wetland food and cover plants" refers to annual and perennial, wild, herbaceous plants that grow on moist to wet sites. These plants furnish food or cover, mainly for wetland wildlife. They include smartweed, wild millet, bulrush and other rushes, spike-sedge and other sedges, burreed and other reeds, wildrice, rice cutgrass, mannagrass, bluejoint, and cattails. They do not include submerged or floating aquatics.

In the column heading "Shallow impoundments and excavated ponds," "shallow impoundments" refers both to impoundments and to excavated areas where the water is generally not more than 5 feet deep and where the control structures include low dams and levees, shallow dugouts, level ditches, and devices that control the water level in marshy drainageways or channels. To be suitable for fish, impounded ponds require an ample supply of water. "Excavated ponds" refers to dugout areas or combinations of dugout areas and low-dike impoundments. They include ponds that have a surface area of at least a tenth of an acre, that average 6 feet in depth over at least a fourth of their acreage, and that have a dependable source of water of suitable quality.

"Woodland wildlife" includes ruffed grouse, woodcock, thrush, vireo, scarlet tanager, gray squirrel, red squirrel, white-tailed deer, raccoon, snowshoe hare, and other kinds of birds and mammals that normally live in wooded areas where hardwood trees and shrubs and coniferous trees and shrubs grow.

"Wetland wildlife" includes black duck, wood duck, rail, heron, shore birds, mink, muskrat, beaver, and other kinds of birds and mammals that normally live in ponds, marshes, and swamps.

Although the detailed soil map and table 6 are guides for evaluating most areas, onsite investigation is needed because as much as 15 percent of an area designated on the map as a specific soil may consist of spots of other soils too small to be shown on the published map.

Distribution of food and cover

The nature and quality of the wildlife habitat are affected by the topography and the natural vegetation and also by farming and other uses of the soils. The present distribution of wildlife food and cover in the two counties and the relative abundance of specified kinds of wildlife are described here in relation to the five soil associations. (For general descriptions of the associations, refer to the section "General Soil Map.")

SOIL ASSOCIATION 1.—The woodlands, particularly the heavily cutover areas, the dairy and orchards farms, and the abandoned fields that are being invaded by shrubs and low-growing trees in this association (see cover picture) provide habitat for many animals. The plants that provide food and cover include sugar maple, beech, white birch, gray birch, white pine, hemlock, red oak, white ash, basswood, poplar, black cherry, spruce, fir, larch (tamarack), white-cedar, striped maple, mountain maple, hornbeam, hophornbeam, and other trees; and thornapple, wild apple, chokecherry, pin cherry, viburnum, dogwood, raspberry, blackberry, alder, willow, and other shrubs and small trees.

This association provides a good habitat for deer. The pastures and meadows provide grazing, particularly early in spring and in summer. Grasses and legumes that have been limed and fertilized are especially attractive. Cutover woodland where pulp is being harvested provides browse. Deer also eat waste apples and apple buds and sometimes cause damage to the apple trees.

This association is an excellent habitat for snowshoe hare. The pastures and a few abandoned fields provide food the year round. The fields and orchards provide cover and plenty of food in summer, and young northern hardwood trees provide browse in winter. Conifers also provide food and cover.

This association is a good habitat for grouse. They eat apple buds and sometimes cause serious damage to the apple trees. Open areas along the logging roads are a source of seeds and fruit in fall and early in winter and of clover in spring and summer. The shrubby hedgerows along the woodland and along the stone walls are an excellent source of food in spring and fall. Although conifers are significant in the habitat, extensive stands of pole-size ones make a poor habitat for grouse.

This association provides a good habitat for woodcock. The swampy areas of the Leicester and Whitman soils, the more or less open areas of brush, and the stands of birch and poplar saplings in cutover woodland areas and abandoned fields furnish food and cover, including nesting places.

The habitat is fair for gray squirrel and poor for pheasant. Pheasant must be released each year because the soils, the type of farms, and the extent of fields in this association are not conducive to natural reproduction. The association does have potential as a site for game preserves from which pheasant could be released.

This association provides a good habitat for several kinds of furbearing animals. The fields, pastures, and

orchards, and the stone walls that separate them, provide food and cover for red fox, skunk, and weasel; the wooded areas for fisher; and the many areas along the streams and farm ponds for muskrat and raccoon. Beaver are a nuisance in some places because they cause flooding of fields, roads, and culverts.

More numerous in this excellent habitat than in other associations are oriole, meadowlark, red-winged blackbird, bobolink, catbird, brown thrasher, song sparrow, field sparrow, and other birds that live on open land. The habitat is also good for meadow jumping mouse, meadow mouse, woodchuck, chipmunk, and other nongame animals, as well as various nonpoisonous snakes, such as garter snake, milk snake, and smooth green snake.

Soil association 2.—The forest, the seashore, the marshes, the estuaries, and other bodies of water provide the wildlife habitat in this association. There are few farms. Pitch pine, scrub oak, spruce, cedar, and white birch are the principal trees growing in shallow soils that are close to the sea. Red oak, juniper, and northern hardwoods grow in deeper soils in inland areas. Lowbush blueberry, bearberry, bayberry, dogwood, viburnum, and, in wet pockets, alder and willow are among the shrubs and small trees important to wildlife.

The habitat for deer is generally poor in this association. There are only a few areas of grassland to provide food in spring and summer and a few alders and spruce in wet spots to provide cover and food in winter.

In general, this association provides a poor habitat for snowshoe hare. The depressions where alder, willow, and fir grow offer fair food and cover.

This association does not provide a suitable habitat for grouse, because it lacks openings in the forests and has unfavorable topography.

The numerous small, somewhat open alder and willow swamps and the open thickets of birch and poplar provide a good habitat for woodcock, but other associations have larger numbers of woodcock.

The seashore, the tidal pools, the harbors, and the salt water along the coast in this association provide a good habitat for birds, marine life, seal, fish, and lobster and other shellfish. Among the birds, which are especially abundant during the migration seasons, are sparrow, sandpiper, yellowleg, tern, blackbacked gull, herring gull, osprey, bald eagle, bittern, heron, old squaw duck, coot, black duck, goldeneye duck, scaup duck, and eider duck. Among the fish are striped bass, flounder, and, in winter and spring, smelt.

Soil association 3.—There are few farms in this association. Elm, fir, white pine, hemlock, red maple, larch, and willow are the dominant trees. Shrubs and low-growing trees include dogwood, viburnum, highbush blueberry, highbush cranberry, black alder, laurel, and Canada yew. The herbaceous plants are mainly sedges, grass, smartweed, cattails, and ferns. Many fields formerly used for hay are now overgrown with medium to dense stands of alder.

This association provides a good habitat for deer. The coniferous forest, the small pastures, the meadows, and the swamps provide a variety of native forage plants. Deer are abundant.

An area of this association in the northwestern part of Sagadahoc County provides ideal food and cover for moose and supports a large herd. The moose are protected, but they are of interest to naturalists, sightseers, and nature students.

The alder and willow swamps and the fir trees and Canada yew in this association provide a good habitat for snowshoe hare. Hare travel well enough in deep snow to reach browse that is unavailable to deer. The number of hare fluctuates even in the most favorable habitat.

The stands of shrubby plants, sapling and pole-size hardwoods, and scattered conifers in areas adjacent to uplands provide a good habitat for grouse.

Grassy openings in overgrown fields and in woodlands, the woody and bushy growth in old fields, stands of saplings bordering woodlands, and small thickets in damp or swampy places combine to provide a good habitat for woodcock during the nesting season. In fall, woodcock favor swamps that have stands of shrubby vegetation and hardwood saplings. The suitability of an area as a habitat for woodcock declines when the trees grow beyond the sapling stage and when brushy and swampy areas are not grazed.

This association is a good habitat for beaver. The population varies with the quantity of poplar and alder. Because the topography is level, beaver dams cause extensive flooding. Other furbearers include muskrat, raccoon, mink, and otter.

Thousands of migratory waterfowl rest on Merrymeeting Bay and the surrounding waters in spring and fall. Areas of marshland have good potential for development as waterfowl habitat. Many need only water-control structures. The vegetation includes wildrice, sage, pondweed, cordgrass, cattails, rushes, and sedges (*10*). Drainage of the marshes should not be undertaken until consideration has been given to its effect on wildlife.

The wetlands of this association provide a good habitat for waterfowl and for numerous nongame species of birds, including yellow warbler, yellowthroat, bittern, green heron, and blue heron.

Soil association 4.—This association includes cropland, grassland, and woodland and provides an excellent habitat for wildlife. The plants that provide food and cover are white pine, hemlock, red maple, elm, fir, gray birch, white birch, beech, ash, poplar, and other trees; and common juniper, redcedar, dogwood, viburnum, wild apple, raspberry, blackberry, elderberry, alder, willow, and other shrubs and small trees.

This association provides an excellent habitat for deer. The many small fields of grasses and legumes provide excellent grazing and the shrubby hedgerows surrounding the fields, as well as the woodland understory, provide good browse. Harvesting the pine tends to increase the growth of fir and hardwood sprouts, which provide food for deer.

Areas of this association in the northwestern part of Sagadahoc County offer ideal food and cover for moose and support a large herd.

The newly cutover areas of this association, particularly those having an abundance of small conifers, maple sprouts, raspberry bushes, gray birches, sumacs, and poplars, are good habitat for wildlife. The alder and willow swamps are also good.

The clearings, the overgrown fields, the pastures, the swamps, and the roadside areas of this association provide a good habitat for grouse. Among the plants that provide food for these birds are thornapple, wild apple,

dogwood, bittersweet, raspberry, blackberry, beech, poplar, birch, wild cherry, and hophornbeam. Food seldom limits the grouse population because grouse feed from the ground to the tops of the trees, but the grouse population fluctuates from time to time for unknown reasons.

This association provides a good habitat for woodcock. Among the plants that provide cover, including nesting sites, are birch, poplar, and alder. The soils are an ideal medium for earthworms.

This association provides a poor habitat for beaver, because the streams are steep and the supply of available food is small. Beaver are less numerous in this association than in association 3.

This association also provides a good habitat for several small mammals and numerous birds. Among the mammals are red squirrel, red-backed mouse, woodland jumping mouse, meadow mouse, chipmunk, woodchuck, and weasel. The birds include warbler, flycatcher, sparrow, oriole, chickadee, red-winged blackbird, and cedar waxwing.

SOIL ASSOCIATION 5.—The meadows, the pastures, the small scattered fields, and the woodland provide the wildlife habitat in this association. The plants that provide food and cover are white pine, white birch, gray birch, red maple, scrub oak, red oak, conifers, and other trees; and sweet fern, lowbush blueberry, pin cherry, chokecherry, dogwood, viburnum, poplar, and other low-growing plants. The soils are droughty enough to slow the growth of conifers, thus creating a more favorable habitat.

The dry soils of this association provide a fair habitat for deer, and the moderately well drained soils a good habitat. The pastures, meadows, and woodlands furnish a variety of forage plants as well as a cover of coniferous woody plants.

This association provides a fair habitat for snowshoe hare. Food and cover are furnished by stands of sapling gray birch, poplar, and fir and other conifers.

The overgrown fields, the edges of meadows and pastures, the heavily cutover woodlands, and the brush along the edges of fields and roads provide a fair habitat for grouse. Heavy coniferous cover tends to limit the grouse population.

The habitat for woodcock is inferior to the habitat in other associations because the dominant soils are sandy and droughty, and there are no moist feeding grounds.

Beaver are less abundant than in other associations because the streams are steep and the supply of food is small. The habitat for mink, muskrat, and otter is poor, but these animals are to be found along streams, mainly upstream from dams.

The habitat for woodchuck, ovenbird, yellow warbler, bank swallow, kingfisher, bluejay, and other nongame birds is fair.

Use of the Soils in Community Development and Recreation

Around the twin cities of Lewiston and Auburn in this survey area are currently developing communities, and along the many lakes and the coastline are recreational areas.

Table 7 shows the degree and kind of major limitations for community and recreational facilities of each soil in Androscoggin and Sagadahoc Counties. The degrees of limitation are slight, moderate, and severe. A rating of *slight* indicates that the limitations, if any, are easily overcome; *moderate* indicates that overcoming the limitations is generally feasible; and *severe* indicates that the limitations are difficult to overcome and that the use of the soil for this purpose is questionable.

The detailed soil map and table 7 are guides for evaluating areas for the specified use, but detailed onsite investigations are needed because as much as 15 percent of an area designated on the map as a specific soil may consist of spots of other soils.

The column headings in table 7 are discussed briefly in the following paragraphs.

The degree of limitation for septic tanks depends mainly upon the permeability of the subsoil and substratum, the depth to the water table, the slope, the flood hazard, the depth to bedrock, and stoniness. The U.S. Public Health Service specifies that the rate of permeability should be at least 1 inch per hour and the depth to the water table at least 4 feet. Impervious material should be at least 4 feet below the bottom of the trench. Tests made in summer may indicate a more rapid rate of percolation than prevails in other seasons, and they do not indicate a seasonal high water table.

The degree of limitation for sewage lagoons (ponds where sewage is biologically decomposed) depends mainly upon percolation and slope. The slope should be no more than 8 percent, and the percolation rate very slow. Other factors that should be considered are stoniness and fluctuation of the water table. The State sanitary code regulates the size, location, and design of sewage lagoons.

The degree of limitation for sanitary land fills depends on the depth to bedrock, the slope, stoniness or rockiness, the flood hazard, the depth to the water table, the texture of the substratum, and permeability. Medium-textured and fine-textured soils have less severe limitations than coarse-textured soils. Some of the waste products from sanitary land fills, including diesel fuel, kerosene, and insecticides, will travel long distances underground, and the distance from streams should be sufficient to preclude contamination of the water with such wastes. Also, the use of equipment to move soil material must be feasible.

The degree of limitation for fallout shelters depends on drainage, the stability of the soil, and the capacity of the soil to support sod. Depth is also significant; at least half the shelter needs to be below ground level, and the entire shelter needs to have a 3-foot cover of earth.

The degree of limitation for building foundations relates to buildings that have basements and are not more than three stories high. It depends mainly upon slope, the depth to the water table, the depth to bedrock, erodibility, bearing strength, drainage, stoniness, and the flood hazard.

The degree of limitation for cemeteries depends on the drainage, the depth to bedrock or to hard strata in the subsoil, the depth to a water table, the slope, the number of stones, the texture of the surface layer, the flood hazard, and the capacity of the soil to support a plant cover.

The degree of limitation for campsites, which include areas for tents, trailers, and picnics and sites for permanent cottages used seasonally, depends on the permeability of the substratum, the texture of the surface layer, the stability when wet, the number of large stones and rock

TABLE 7.—*Degree and kind of limitation for*

[A rating of *slight* indicates that the limitations, if any, are easily overcome; *moderate* indicates that overcoming the limitations is generally

Soil series and map symbols	Community facilities					
	Sewage disposal		Sanitary land fills	Earth-covered fallout shelters	Foundations of buildings	Cemeteries
	Septic tanks	Sewage lagoons				
Adams:						
(AaB)	Moderate: may contaminate ground water.	Severe: rapid permeability.	Severe: rapid permeability; may contaminate ground water.	Slight	Slight: differential settling.	Moderate: droughtiness; difficult to maintain sod.
(AaC)	Moderate: slope; may contaminate ground water.	Severe: rapid permeability.	Severe: rapid permeability; may contaminate ground water; slope; erodibility.	Slight	Moderate: slope; differential settling.	Moderate: droughtiness; difficult to maintain sod; erodibility.
(AaD)	Severe: slope; may contaminate ground water; seepage.	Severe: rapid permeability; slope.	Severe: rapid permeability; may contaminate ground water; slope; erodibility.	Slight	Severe: slope; differential settling.	Severe: erodibility; slope; rapid permeability; difficult to maintain sod.
(AbD)	Severe: slope; may contaminate ground water; seepage; stones.	Severe: rapid permeability; slope; stones.	Severe: rapid permeability; may contaminate ground water; slope; stones.	Slight	Severe: slope; stones; differential settling.	Severe: stones; slope; erodibility; difficult to maintain sod.
Agawam:						
(AdA)	Moderate: may contaminate ground water.	Severe: rapid permeability.	Severe: rapid permeability; may contaminate ground water.	Slight	Slight	Slight
(AdB)	Moderate: may contaminate ground water.	Severe: rapid permeability.	Severe: rapid permeability; may contaminate ground water.	Slight	Slight	Slight
(AcC)	Moderate: slope; may contaminate ground water; seepage.	Severe: rapid permeability; slope.	Severe: rapid permeability; may contaminate ground water.	Slight	Moderate: slope.	Moderate: slope; erodibility.
(AdD)	Severe: slope; may contaminate ground water; seepage.	Severe: rapid permeability; slope.	Severe: slope; rapid permeability; may contaminate ground water.	Slight	Severe: slope	Severe: slope; erodibility.
Belgrade:						
(BgB)	Severe: slow permeability in subsoil; may contaminate ground water.	Severe: seepage through porous layers; piping; seasonal high water table.	Severe: seasonal high water table; may contaminate ground water.	Severe: seasonal high water table; seepage.	Severe: seepage; seasonal high water table; frost heaving.	Moderate: seasonal high water table; frost heaving.

See footnote at end of table.

community and recreational facilities

feasible; *severe* indicates that the limitations are difficult to overcome and that the use of the soil for this purpose is questionable]

Recreational facilities					
Campsites		Intensive play areas	General landscaping including golf fairways	Unpaved access roads	Ski areas
Tent, trailer, and picnic areas	Permanent cottages for seasonal use				
Moderate: droughtiness; will blow if exposed.	Slight	Severe: droughtiness; will blow if exposed.	Severe: droughtiness; will blow if exposed.	Moderate: instability; differential settling.	Severe: short slopes.
Severe: slope; droughtiness; will blow if exposed.	Slight	Severe: slope; droughtiness; will blow if exposed.	Severe: droughtiness; will blow if exposed.	Severe: slope; instability; differential settling.	Severe: short slopes.
Severe: slope; erodibility; droughtiness; will blow if exposed.	Severe: slope; erodibility.	Severe: slope; droughtiness; erodibility; will blow if exposed.	Severe: droughtiness; erodibility; will blow if exposed.	Severe: slope; erodibility; differential settling.	Severe: short slopes.
Severe: slope; stones; erodibility; droughtiness; will blow if exposed.	Severe: slope; erodibility.	Severe: slope; stones; droughtiness; will blow if exposed.	Severe: droughtiness; stones; slope; will blow if exposed.	Severe: slope; erodibility; differential settling; stones.	Severe: short slopes.
Slight	Slight	Slight	Slight	Slight	Severe: short slopes.
Slight	Slight	Moderate: erodibility; slope.	Slight	Slight	Severe: short slopes.
Severe: slope; erodibility.	Moderate: slope; erodibility.	Severe: slope; erodibility.	Slight	Severe: slope	Severe: short slopes.
Severe: slope; erodibility.	Severe: slope; erodibility.	Severe: slope; erodibility.	Severe: slope; erodibility.	Severe: slope; erodibility.	Severe: short slopes.
Severe: wetness; moderately slow permeability in substratum.	Moderate: moderately slow permeability in substratum; frost heaving.	Moderate: seasonal high water table; frost heaving; dries late in spring.	Moderate: seasonal high water table; dries late in spring.	Severe: frost heaving; seasonal high water table.	Severe: short slopes.

TABLE 7.—*Degree and kind of limitation for*

Soil series and map symbols	Community facilities					
	Sewage disposal		Sanitary land fills	Earth-covered fallout shelters	Foundations of buildings	Cemeteries
	Septic tanks	Sewage lagoons				
Belgrade—Con. (BgC)	Severe: slow permeability in subsoil; may contaminate ground water.	Severe: seepage through porous layers; piping; seasonal high water table.	Severe: seasonal high water table; erodibility; may contaminate ground water.	Severe: seasonal high water table; seepage.	Severe: seepage; seasonal high water table; frost heaving.	Moderate: seasonal high water table; erodibility; frost heaving.
Biddeford (Bo)	Severe: very slow permeability in subsoil; very high water table.	Slight	Severe: very high water table; ponding.	Severe: very high water table; seepage; ponding.	Severe: very high water table; low shear strength; ponding.	Severe: very high water table; ponding.
Buxton: (BuB2)	Severe: very slow permeability in subsoil.	Moderate: slope.	Severe: seasonal high water table; sticky when wet.	Severe: seasonal high water table; frost heaving.	Severe: low shear strength; frost heaving.	Severe: seasonal high water table; frost heaving; firm clay substratum.
(BuC2)	Severe: very slow permeability in subsoil.	Severe slope	Severe: seasonal high water table; sticky when wet.	Severe: seasonal high water table; frost heaving.	Severe: low shear strength; frost heaving.	Severe: seasonal high water table; frost heaving; firm clay substratum.
Charlton: (CfB)	Slight	Severe: moderately rapid permeability.	Slight	Slight	Slight	Slight
(CfC2)	Moderate: slope; some seepage.	Severe: moderately rapid permeability; slope.	Severe: slope; some seepage.	Slight	Slight	Slight
(CfD2)	Severe: slope; some seepage.	Severe: slope; moderately rapid permeability.	Severe: slope; some seepage.	Slight	Moderate: slope	Severe: slope; erodibility.
(ChB)	Moderate: stones.	Severe: moderately rapid permeability.	Slight	Slight	Slight: stones	Severe: stones
(ChC)	Moderate: stones; slope; some seepage.	Severe: moderately rapid permeability; slope.	Severe: slope; some seepage; stones.	Slight	Slight: stones	Severe: slope; stones; erodibility.
(ChD)	Severe: stones; slope; seepage.	Severe: slope; moderately rapid permeability.	Severe: slope; stones; seepage.	Slight	Moderate: slope; stones.	Severe: slope; stones; erodibility.
Coastal beach (Ck).	Severe: high water table; instability; may contaminate ground water.	Severe: occasional flooding; rapid permeability; may contaminate ground water.	Severe: occasional flooding; rapid permeability in subsoil; may contaminate ground water.	Severe: high water table; occasional flooding.	Severe: occasional flooding; instability; differential settling.	Severe: high water table; instability.

See footnote at end of table.

community and recreational facilities—Continued

Recreational facilities					
Campsites		Intensive play areas	General landscaping including golf fairways	Unpaved access roads	Ski areas
Tent, trailer, and picnic areas	Permanent cottages for seasonal use				
Severe: moderately slow permeability in substratum; slope.	Moderate: moderately slow permeability in substratum; frost heaving.	Severe: seasonal high water table; slope; frost heaving; dries late in spring.	Moderate: seasonal high water table; dries late in spring; seepage.	Severe: frost heaving; seasonal high water table; slope; erodibility.	Severe: short slopes.
Severe: very high water table; very slow permeability; ponding.	Severe: low shear strength; very high water table; very slow permeability; ponding.	Severe: very high water table; ponding.	Severe: ponding; large amount of clay; difficult to maintain desirable vegetation.	Severe: very high water table; frost heaving; ponding.	Severe: gentle slopes.
Severe: wetness; very slow permeability; sticky when wet.	Severe: very slow permeability; frost heaving; low shear strength.	Moderate: wetness; large amount of silt and clay; frost heaving; dries late in spring.	Moderate: soft and sticky when wet.	Severe: frost heaving; low shear strength; soft and sticky when wet.	Severe: short slopes.
Severe: slope; very slow permeability; sticky when wet.	Severe: very slow permeability; frost heaving; erodibility; low shear strength.	Severe: wetness; slope; frost heaving; dries late in spring.	Moderate: soft and sticky when wet.	Severe: frost heaving; low shear strength; soft and sticky when wet.	Severe: short slopes.
Slight	Slight	Slight	Slight	Slight	Severe: gentle slopes.
Severe: slope; erodibility.	Moderate: slope	Severe: slope; erodibility.	Slight	Moderate: slope.	Moderate: slope.
Severe: slope; erodibility.	Severe: slope	Severe: slope; erodibility.	Severe: slope; erodibility.	Severe: slope; erodibility.	Slight.
Severe: stones	Moderate: stones	Severe; stones; slope.	Severe: stones	Slight	Severe: gentle slopes.
Severe: slope; erodibility; stones.	Moderate: slope; stones.	Severe: slope; stones; erodibility.	Severe: slope; stones.	Moderate: slope; stones.	Moderate: stones.
Severe: slope; stones; erodibility.	Severe: slope; stones.	Severe: slope; stones; erodibility.	Severe: slope; stones.	Severe: slope; stones; erodibility.	Slight.
Severe: high water table; occasional flooding.	Severe: high water table; occasional flooding.	Moderate: high water table; occasional flooding.	Severe: occasional flooding.	Severe: occasional flooding; instability.	Severe: nearly level; unsuitable location.

TABLE 7.—*Degree and kind of limitation for*

Soil series and map symbols	Community facilities					
	Sewage disposal		Sanitary land fills	Earth-covered fallout shelters	Foundations of buildings	Cemeteries
	Septic tanks	Sewage lagoons				
Dune land (Du).	Severe: instability; may contaminate ground water.	Severe: rapid permeability; may contaminate ground water.	Severe: rapid permeability; may contaminate ground water.	Slight	Severe: instability; differential settling.	Severe: sloughing; instability; droughtiness.
Elmwood: (EmB)	Severe: very slow permeability in substratum.	Moderate: slope.	Severe: seasonal high water table; seepage.	Severe: seasonal high water table; low shear strength; frost heaving.	Severe: low shear strength; seasonal high water table; frost heaving.	Severe: seasonal high water table; frost heaving.
(EmC2)	Severe: very slow permeability in substratum.	Severe: slope	Severe: seasonal high water table; seepage.	Severe: seasonal high water table; seepage; low shear strength; frost heaving.	Severe: low shear strength; seasonal high water table; frost heaving.	Severe: seasonal high water table; slope; erodibility; frost heaving.
Hadley (Ha)	Severe: occasional flooding; may contaminate streams.	Severe: rapid permeability; occasional flooding; may contaminate streams.	Severe: occasional flooding; may contaminate streams.	Severe: occasional flooding.	Severe: occasional flooding.	Severe: occasional flooding; frost heaving.
Hartland: (HfB)	Severe: moderately slow permeability in subsoil.	Severe: some seepage.	Slight	Slight	Slight: some frost heaving.	Slight: some frost heaving.
(HfC2)	Severe: moderately slow permeability in subsoil; slope.	Severe: some seepage; slope.	Severe: slope	Slight	Slight	Slight: some frost heaving.
(HfD2)	Severe: moderately slow permeability in substratum; slope.	Severe: some seepage; slope.	Severe: slope; some seepage.	Slight	Severe: slope; seepage; some frost heaving.	Severe: slope; erodibility; frost heaving.
Hinckley: (HkB)	Moderate: may contaminate ground water.	Severe: very rapid permeability.	Severe: very rapid permeability.	Slight	Slight	Moderate: gravelly substratum; droughtiness.
(HkC)	Moderate: may contaminate ground water.	Severe: very rapid permeability.	Severe: very rapid permeability.	Slight	Slight	Moderate: gravelly substratum; droughtiness.
(HkD)	Severe: slope; may contaminate ground water.	Severe: very rapid permeability; slope.	Severe: very rapid permeability; slope.	Slight	Severe: slope	Severe: slope; droughtiness; gravelly substratum.
Hollis: (HrB)	Severe: shallow to bedrock.	Severe: shallow to bedrock.	Severe: shallow to bedrock.	Severe: shallow to bedrock.	Severe: shallow to bedrock.	Severe: droughtiness; shallow to bedrock.

See footnote at end of table.

community and recreational facilities—Continued

Recreational facilities					
Campsites		Intensive play areas	General landscaping including golf fairways	Unpaved access roads	Ski areas
Tent, trailer, and picnic areas	Permanent cottages for seasonal use				
Severe: instability; droughtiness; soil blowing.	Severe: instability; droughtiness; soil blowing.	Severe: instability; droughtiness; soil blowing.	Severe: instability; droughtiness; soil blowing.	Severe: instability; soil blowing.	Severe: gentle slopes.
Moderate: seasonal wetness.	Moderate: seasonal high water table; frost heaving.	Moderate: seasonal high water table.	Moderate: seasonal high water table; wetness.	Moderate: low shear strength; seasonal wetness; frost heaving.	Severe: gentle slopes.
Severe: slope; seasonal wetness.	Moderate: seasonal high water table; slope; frost heaving.	Severe: seasonal high water table; slope.	Moderate: slope; seasonal high water table; seasonal wetness.	Severe: low shear strength; erodibility; seasonal wetness; frost heaving.	Severe: short slopes.
Severe: occasional flooding.	Severe: occasional flooding.	Moderate: occasional flooding; frost heaving.	Moderate: occasional flooding; frost heaving.	Moderate: occasional flooding; frost heaving.	Severe: nearly level.
Slight	Slight	Slight	Slight	Moderate: some frost heaving; erodibility.	Severe: gentle slopes.
Severe: slope; erodibility.	Moderate: slope; erodibility; severe if septic tanks are used for sewage disposal.	Severe: slope; erodibility.	Slight	Severe: frost heaving; erodibility.	Moderate: short slopes; erodibility.
Severe: slope; erodibility.	Severe: slope; erodibility.	Severe: slope; erodibility.	Severe: slope; erodibility.	Severe: slope; frost heaving; erodibility.	Moderate: short slopes; erodibility.
Slight	Slight	Severe: droughtiness.	Severe: droughtiness.	Slight	Severe: gentle slopes.
Severe: slope	Severe: droughtiness; slope.	Severe: droughtiness.	Severe: droughtiness.	Moderate: slope	Severe: short slopes.
Severe: slope	Severe: slope	Severe: droughtiness; slope.	Severe: droughtiness; slope.	Severe: slope	Severe: short slopes.
Severe: shallow to bedrock.	Severe: shallow to bedrock.	Severe: shallow to bedrock.	Severe: droughtiness.	Slight	Severe: gentle slopes.

TABLE 7.—*Degree and kind of limitation for*

Soil series and map symbols	Community facilities					
	Sewage disposal		Sanitary land fills	Earth-covered fallout shelters	Foundations of buildings	Cemeteries
	Septic tanks	Sewage lagoons				
Hollis—Continued						
(HrC)	Severe: shallow to bedrock.	Severe: shallow to bedrock.	Severe: shallow to bedrock.	Severe: shallow to bedrock.	Severe: shallow to bedrock.	Severe: droughtiness; shallow to bedrock.
(HrD)	Severe: shallow to bedrock.	Severe: shallow to bedrock.	Severe: shallow to bedrock.	Severe: shallow to bedrock.	Severe: shallow to bedrock.	Severe: droughtiness; shallow to bedrock.
(HsB)	Severe: shallow to bedrock.	Severe: shallow to bedrock; rock outcrops.	Severe: shallow to bedrock.	Severe: shallow to bedrock.	Severe: shallow to bedrock.	Severe: droughtiness; shallow to bedrock.
(HsC)	Severe: shallow to bedrock; slope.	Severe: shallow to bedrock; slope; rock outcrops.	Severe: rapid permeability; stones.	Severe: shallow to bedrock.	Severe: slope; shallow to bedrock; rock outcrops; droughtiness.	Severe: shallow to bedrock; rock outcrops; droughtiness.
(HsD)	Severe: shallow to bedrock; slope.	Severe: shallow to bedrock; slope; rock outcrops.	Severe: rapid permeability; slope; stones.	Severe: shallow to bedrock.	Severe: shallow to bedrock; slope; stones.	Severe: shallow to bedrock; droughtiness; slope; stones.
Leicester:						
(Lc)	Severe: high water table; excess water.	Moderate: fluctuating high water table.	Severe: high water table; excess water.	Severe: high water table.	Severe: high water table; excess water; frost heaving.	Severe: high water table; frost heaving.
(Le)	Severe: high water table; excess water.	Moderate: fluctuating high water table; stones.	Severe: high water table; excess water.	Severe: high water table.	Severe: high water table; excess water; frost heaving.	Severe: high water table; frost heaving.
Limerick (Lk)	Severe: high water table; frequent flooding.	Severe: high water table; frequent flooding.	Severe: high water table; frequent flooding.	Severe: high water table; frequent flooding.	Severe: high water table; frequent flooding.	Severe: high water table; frequent flooding.
Made land (Md, Mf).	(1)	(1)	(1)	(1)	(1)	(1)
Melrose:						
(MeB)	Severe: slow permeability in substratum.	Slight	Slight	Slight	Severe: low shear strength in substratum; some frost heaving.	Slight: frost heaving.
(MeC)	Severe: slow permeability in substratum; slope.	Severe: slope	Severe: slope; some seepage.	Slight	Severe: low shear strength in substratum; slope; some frost heaving.	Slight: frost heaving.
Merrimac:						
(MkB)	Moderate: may contaminate ground water.	Severe: rapid permeability; may contaminate ground water.	Severe: rapid permeability.	Slight	Slight	Slight

See footnote at end of table.

community and recreational facilities—Continued

Recreational facilities					
Campsites		Intensive play areas	General landscaping including golf fairways	Unpaved access roads	Ski areas
Tent, trailer, and picnic areas	Permanent cottages for seasonal use				
Severe: shallow to bedrock.	Severe: shallow to bedrock.	Severe: shallow to bedrock.	Severe: droughtiness.	Severe: shallow to bedrock.	Moderate: moderate slopes.
Severe: slope; rock outcrops.	Severe: shallow to bedrock.	Severe: shallow to bedrock; slope.	Severe: droughtiness; slope.	Severe: shallow to bedrock; slope.	Slight.
Severe: shallow to bedrock; rock outcrops.	Severe: rock outcrops; shallow to to bedrock.	Severe: shallow to bedrock; rock outcrops.	Severe: droughtiness; rock outcrops.	Severe: rock outcrops; shallow to bedrock.	Severe: gentle slopes.
Severe: shallow to bedrock; rock outcrops.	Severe: shallow to bedrock; slope; rock outcrops.	Severe: shallow to bedrock; slope; rock outcrops.	Severe: droughtiness; rock outcrops.	Severe: rock outcrops; shallow to bedrock.	Moderate: rock outcrops.
Severe: shallow to bedrock; slope; rock outcrops.	Severe: shallow to bedrock; slope; rock outcrops.	Severe: shallow to bedrock; slope; rock outcrops.	Severe: slope; droughtiness; rock outcrops.	Severe: slope; rock outcrops; shallow to bedrock.	Moderate: rock outcrops.
Severe: high water table; excess surface water.	Severe: high water table; frost heaving.	Severe: high water table; excess water; frost heaving.	Severe: high water table; excess water; frost heaving.	Severe: high water table; frost heaving.	Severe: nearly level.
Severe: high water table; excess surface water.	Severe: high water table; stones; frost heaving.	Severe: high water table; stones; frost heaving; excess water.	Severe: high water table; stones; frost heaving.	Severe: high water table; frost heaving.	Severe: nearly level.
Severe: frequent flooding.	Severe: frequent flooding.	Severe: high water table; frequent flooding.	Severe: frequent flooding.	Severe: frequent flooding.	Severe: nearly level.
(1)----------	(1)----------	(1)----------	(1)----------	(1)----------	(1).
Slight----------	Slight----------	Moderate: slope----	Slight----------	Moderate: frost heaving; instability.	Severe: gentle slopes.
Severe: slope------	Moderate: low shear strength; slope.	Severe: slope------	Slight----------	Severe: frost heaving; slope; instability.	Moderate: short slopes.
Slight----------	Moderate: droughtiness.	Moderate: droughtiness.	Moderate: slope; droughtiness.	Slight----------	Severe: gentle slopes.

TABLE 7.—*Degree and kind of limitation for*

Soil series and map symbols	Community facilities					
	Sewage disposal		Sanitary land fills	Earth-covered fallout shelters	Foundations of buildings	Cemeteries
	Septic tanks	Sewage lagoons				
Merrimac—Con. (MkC2)	Moderate: may contaminate ground water.	Severe: rapid permeability; slope; may contaminate ground water.	Severe: may contaminate ground water.	Slight	Slight	Slight
(MkD2)	Severe: slope; may contaminate ground water.	Severe: rapid permeability; slope; may contaminate. ground water.	Severe: may contaminate ground water.	Slight	Severe: slope	Moderate: slope; droughtiness.
Ninigret (NgB)	Severe: seasonal high water table; may contaminate ground water.	Severe: seasonal high water table; may contaminate ground water; moderately rapid permeability in substratum in dry season.	Severe: moderately rapid permeability; may contaminate ground water.	Severe: seasonal high water table; seepage; some frost heaving.	Moderate: seasonal high water table; seepage; some frost heaving.	Moderate: seasonal high water table; some frost heaving.
Ondawa (On)	Severe: occasional flooding.	Severe: occasional flooding.	Severe: occasional flooding.	Severe: occasional flooding.	Severe: occasional flooding.	Severe: occasional flooding.
Paxton: (PbB)	Severe: slow permeability in substratum.	Moderate: slow permeability; slope.	Moderate: very firm substratum.	Slight	Slight	Severe: very firm substratum.
(PbC)	Severe: slow permeability in substratum.	Severe: slope	Severe: slope; seepage; very firm substratum.	Slight	Slight	Severe: slope; very firm substratum.
(PbD)	Severe: slope; slow permeability in substratum.	Severe: slope	Severe: slope; seepage; very firm substratum.	Slight	Severe: slope	Severe: slope
(PfB)	Severe: slow permeability in substratum; stones.	Moderate: slow permeability; stones; slope.	Moderate: very firm substratum.	Slight	Slight	Severe: stones; very firm substratum.
(PfC)	Severe: slope; slow permeability in substratum; stones.	Severe: slope; stones.	Severe: slope; seepage; very firm substratum.	Slight	Slight	Severe: slope; stones; very firm substratum.
(PfD)	Severe: slope; slow permeability in substratum; stones.	Severe: slope; stones.	Severe: slope; seepage; very firm substratum.	Slight	Severe: slope; stones.	Severe: slope; stones.
Peat and Muck (Pa).	(1)	(1)	(1)	(1)	(1)	(1)

See footnote at end of table.

community and recreational facilities—Continued

Recreational facilities					
Campsites		Intensive play areas	General landscaping including golf fairways	Unpaved access roads	Ski areas
Tent, trailer, and picnic areas	Permanent cottages for seasonal use				
Severe: slope	Severe: slope; droughtiness.	Severe: slope; droughtiness.	Moderate: slope; droughtiness.	Moderate: slope	Severe: short slopes.
Severe: slope	Severe: slope; droughtiness.	Severe: slope; droughtiness.	Severe: slope; droughtiness.	Severe: slope	Severe: short slopes.
Moderate: seasonal high water table.	Moderate: seasonal high water table.	Moderate: seasonal wetness; some frost heaving.	Moderate: seasonal wetness; some frost heaving.	Moderate: frost heaving; seasonal high water table.	Severe: gentle slopes.
Severe: occasional flooding.	Severe: occasional flooding.	Moderate: occasional flooding.	Moderate: occasional flooding.	Moderate: occasional flooding.	Severe: gentle slopes.
Moderate: slow permeability in substratum.	Moderate: slow permeability in substratum.	Moderate: slow permeability in substratum.	Slight	Slight	Severe: gentle slopes.
Severe: slope; slow permeability in substratum.	Moderate: slow permeability in substratum.	Severe: slope; stones.	Slight	Moderate: seepage; slope.	Moderate: moderate slopes.
Severe: slope; slow permeability in substratum.	Severe: slow permeability in substratum; slope.	Severe: slope; stones.	Severe: slope	Severe: slope; seepage.	Slight.
Moderate: slow permeability in substratum; stones.	Moderate: stones; slow permeability in substratum.	Severe: stones	Severe: stones	Moderate: stones; seepage.	Severe: gentle slopes; stones.
Severe: slow permeability in substratum; slope; stones.	Moderate: stones; slow permeability in substratum.	Severe: slope; stones.	Severe: stones	Severe: seepage; stones; slope.	Moderate: stones.
Severe: slope; stones; slow permeability in substratum.	Severe: stones; slope; slow permeability in substratum.	Severe: slope; stones.	Severe: slope; stones.	Severe: slope; seepage; stones.	Slight.
[1]	[1]	[1]	[1]	[1]	[1].

TABLE 7.—*Degree and kind of limitation for*

Soil series and map symbols	Community facilities					
	Sewage disposal		Sanitary land fills	Earth-covered fallout shelters	Foundations of buildings	Cemeteries
	Septic tanks	Sewage lagoons				
Podunk (Py)	Severe: seasonal high water table; occasional flooding.	Severe: occasional flooding; may contaminate streams.	Severe: occasional flooding; may contaminate streams.	Severe: occasional flooding.	Severe: seasonal high water table; occasional flooding.	Severe: seasonal high water table; some frost heaving; occasional flooding.
Rock land-Hollis:						
(RhC)	Severe: shallow to bedrock.	Severe: shallow to bedrock; slope.	Severe: shallow to bedrock.	Severe: shallow to bedrock.	Severe: shallow to bedrock.	Severe: shallow to bedrock.
(RhD)	Severe: shallow to bedrock; slope.	Severe: shallow to bedrock; slope.	Severe: shallow to bedrock; slope.	Severe: shallow to bedrock; slope.	Severe: shallow to bedrock; slope.	Severe: shallow to bedrock; slope.
Saco (Sa)	Severe: frequent flooding; very high water table.	Severe: frequent flooding; very high water table; may contaminate streams.	Severe: frequent flooding; may contaminate streams.	Severe: frequent flooding; very high water table.	Severe: frequent flooding; very high water table.	Severe: frequent flooding; very high water table.
Scantic (ScA)	Severe: very slow permeability in substratum.	Slight	Severe: high water table; ponding.	Severe: high water table; seepage; low shear strength; frost heaving.	Severe high water table; low shear strength; frost heaving.	Severe: high water table; ponding; frost heaving; firm clayey substratum.
Scarboro (So)	Severe: high water table; may contaminate ground water.	Severe: rapid permeability; high water table; may contaminate ground water.	Severe: high water table; may contaminate ground water.	Severe: high water table.	Severe: high water table; excess water.	Severe: high water table; excessive wetness.
Suffield:						
(SuC2)	Severe: slow permeability in substratum.	Severe: slope	Severe: seepage; slope; soft and sticky when wet.	Slight	Moderate: frost heaving; unstable subsoil and substratum.	Severe: slope; heavy clay substratum; frost heaving.
(SuD2)	Severe: slow permeability in substratum.	Severe: slope	Severe: slope; seepage; soft and sticky when wet.	Slight	Severe: frost heaving; unstable subsoil and substratum.	Severe: heavy clay substratum; frost heaving.
Sutton:						
(SxB)	Severe: seasonal high water table; may contaminate ground water.	Severe: seasonal high water table; may contaminate ground water.	Severe: seasonal high water table; may contaminate ground water.	Moderate: seasonal high water table.	Moderate: seasonal high water table.	Severe: seasonal high water table; some frost heaving.
(SxC)	Severe: seasonal high water table; may contaminate ground water.	Severe: slope; seasonal high water table; may contaminate ground water.	Severe: seepage; seasonal high water table; may contaminate ground water.	Moderate: seasonal high water table.	Moderate: seasonal high water table.	Severe: slope; some frost heaving.

See footnote at end of table.

community and recreational facilities—Continued

Recreational facilities					
Campsites		Intensive play areas	General landscaping including golf fairways	Unpaved access roads	Ski areas
Tent, trailer, and picnic areas	Permanent cottages for seasonal use				
Severe: occasional flooding.	Severe: occasional flooding.	Moderate: occasional flooding; some frost heaving.	Moderate: occasional flooding; some frost heaving.	Moderate: occasional flooding; some frost heaving.	Severe: level.
Severe: rock outcrops.	Severe: shallow to bedrock; slope.	Severe: rock outcrops; slope.	Severe: rock outcrops; slope.	Severe: shallow to bedrock.	Severe: rock outcrops.
Severe: rock outcrops; slope.	Severe: shallow to bedrock; slope.	Severe: rock outcrops; slope.	Severe: rock outcrops; slope.	Severe: shallow to bedrock.	Severe: rock outcrops.
Severe: frequent flooding.	Severe: frequent flooding; very high water table.	Severe: frequent flooding.	Severe: frequent flooding.	Severe: frequent flooding; unstable subsoil.	Severe: nearly level.
Severe: slow permeability; ponding; low shear strength; frost heaving.	Severe: slow permeability; ponding; frost heaving.	Severe: high water table; ponding; frost heaving.	Severe: ponding; seasonal high water table; frost heaving.	Severe: high water table; low shear strength; frost heaving.	Severe: nearly level.
Severe: high water table; excessive wetness.	Severe: high water table; excessive wetness.	Severe: excessive wetness.	Severe: excessive wetness; undesirable vegetation.	Severe: high water table; excessive wetness.	Severe: nearly level.
Severe: slope; slow permeability in substratum.	Moderate: slow permeability in substratum; frost heaving.	Severe: slope; frost heaving; soft and sticky when wet.	Moderate: soft and sticky when wet; frost heaving.	Severe: frost heaving; low shear strength.	Severe: short slopes.
Severe: slope; erodibility; slow permeability in substratum.	Severe: slope; erodibility; frost heaving; slow permeability in substratum.	Severe: slope; frost heaving.	Severe: slope; soft and sticky when wet; frost heaving.	Severe: slope; frost heaving; low shear strength.	Severe: short slopes.
Severe: seasonal high water table; excessive seasonal wetness; frost heaving; seepage.	Moderate: slope; seasonal high water table.	Moderate: slope; seasonal wetness.	Moderate: seasonal wetness; seepage.	Moderate: high water table; some frost heaving.	Severe: gentle slopes.
Severe: slope; seasonal high water table; excessive seasonal wetness; frost heaving; seepage.	Moderate: slope; erodibility.	Severe: slope; seasonal wetness.	Moderate: seasonal wetness; seepage.	Severe: high water table; slope; erodibility; some frost heaving.	Moderate: seepage.

TABLE 7.—*Degree and kind of limitation for*

Soil series and map symbols	Community facilities					
	Sewage disposal		Sanitary land fills	Earth-covered fallout shelters	Foundations of buildings	Cemeteries
	Septic tanks	Sewage lagoons				
Sutton—Con. (SyB)	Severe: seasonal high water table; stones; may contaminate ground water.	Severe: stones; seasonal high water table; may contaminate ground water.	Severe: seasonal high water table; may contaminate ground water.	Moderate: seasonal high water table.	Moderate: seasonal high water table.	Severe: stones; seasonal high water table; some frost heaving.
(SyC)	Severe: seasonal high water table; stones; may contaminate ground water.	Severe: slope; seasonal high water table; may contaminate ground water.	Severe: seepage; seasonal high water table; may contaminate ground water.	Moderate: seasonal high water table.	Moderate: seasonal high water table.	Severe: stones; slope; some frost heaving.
Swanton (SzA)	Severe: very high water table.	Slight	Severe: very high water table.	Severe: very high water table.	Severe: very high water table; low shear strength.	Severe: very high water table.
Tidal marsh (Tn).	(1)	(1)	(1)	(1)	(1)	(1)
Walpole (Wa)	Severe: very high water table; may contaminate ground water.	Severe: rapid permeability in subsoil; may contaminate ground water.	Severe: very high water table; may contaminate ground water.	Severe: very high water table.	Severe: very high water table.	Severe: very high water table.
Whately (Wg)	Severe: very high water table.	Moderate: excess water on surface; excess organic matter in surface layer.	Severe: very high water table; seepage; may contaminate streams.	Severe: very high water table.	Severe: very high water table; low shear strength.	Severe: very high water table; clay substratum.
Whitman (Wh)	Severe: very high water table; slow permeability in substratum.	Moderate: excess water on surface.	Severe: very high water table.	Severe: very high water table.	Severe: very high water table.	Severe: very high water table; very firm layer at a depth of 2 feet.
Winooski (Wn)	Severe: seasonal high water table; occasional flooding; may contaminate streams.	Severe: occasional flooding; may contaminate streams.	Severe: occasional flooding; may contaminate streams.	Severe: seasonal high water table; occasional flooding.	Severe: occasional flooding; seasonal high water table.	Severe: seasonal high water table; frost heaving.
Woodbridge: (WrB)	Severe: slow permeability in substratum.	Moderate: stones; slope.	Severe: very firm fragipan at a depth of 2 feet; seepage.	Severe: seepage.	Moderate: seasonal high water table; seepage.	Severe: high water table; very firm substratum.
(WsB)	Severe: slow permeability in substratum.	Moderate: stones; slope.	Severe: very firm fragipan at a depth of 2 feet; seepage.	Severe: seepage; stones.	Moderate: seasonal high water table; seepage.	Severe: high water table; very firm substratum; stones.

[1] Not classified; onsite investigation required.

community and recreational facilities—Continued

Recreational facilities					
Campsites		Intensive play areas	General landscaping including golf fairways	Unpaved access roads	Ski areas
Tent, trailer, and picnic areas	Permanent cottages for seasonal use				
Severe: seasonal high water table; excessive seasonal wetness; frost heaving; seepage.	Moderate: slope; seasonal high water table.	Severe: stones; slope; seasonal wetness.	Severe: wetness; stones; seepage.	Moderate: stones; seasonal high water table; some frost heaving.	Severe: gentle slopes.
Severe: slope; seasonal high water table; seasonal wetness; frost heaving; seepage.	Moderate: slope; seasonal high water table.	Severe: slope; stones; seasonal wetness.	Severe: slope; stones; seepage.	Severe: slope; stones; some frost heaving.	Moderate: stones; seepage.
Severe: very high water table.	Severe: very high water table; low shear strength in substratum.	Severe: very high water table; excessive wetness.	Severe: very high water table; excessive wetness.	Severe: frost heaving; very high water table.	Severe: nearly level.
(1)	(1)	(1)	(1)	(1)	(1).
Severe: very high water table; excess water on surface most of year.	Severe: very high water table.	Severe: very high water table; excess water on surface most of year.	Severe: excessive wetness; undesirable vegetation.	Severe: very high water table; excessive wetness.	Severe: nearly level.
Severe: very high water table; excess water on surface most of year.	Severe: very high water table; excess water on surface most of year.	Severe: very high water table; excess water on surface most of year.	Severe: excessive wetness; undesirable vegetation; soft when wet.	Severe: very high water table; frost heaving; excessive wetness.	Severe: nearly level.
Severe: very high water table.	Severe: very high water table.	Severe: very high water table.	Severe: excess water on surface for most of year.	Severe: very high water table; frost heaving.	Severe: nearly level.
Severe: occasional flooding.	Severe: seasonal high water table; occasional flooding.	Severe: occasional flooding; frost heaving.	Moderate: occasional flooding; frost heaving.	Moderate: occasional flooding; frost heaving.	Severe: nearly level.
Moderate: seasonal high water table.	Moderate: slow permeability in substratum; seasonal high water table.	Moderate: seasonal wetness.	Moderate: seasonal wetness; seepage.	Moderate: high water table.	Severe: gentle slopes.
Severe: seasonal high water table; stones.	Moderate: slow permeability in substratum; seasonal high water table.	Severe: seasonal wetness; stones.	Severe: stones; seasonal wetness.	Moderate: high water table.	Severe: gentle slopes.

outcrops, the degree of wetness, the depth to bedrock, the flood hazard, the depth to the water table, and the capacity of the soil to support a plant cover. Esthetic values and accessibility have not been considered.

The degree of limitation for intensive play areas, which refer to shooting ranges and other playing fields, depends on texture of the surface layer, internal drainage, the degree of slope, the number of stones and rock outcrops, the depth to the water table, the depth to bedrock, the flood hazard, and the capacity of the soil to support a plant cover.

The degree of limitation for general landscaping, which includes the golf fairways but not the greens, depends on the slope, the number of stones, the texture of the soil, the depth to the water table, the depth to bedrock, the internal drainage, the permeability of the surface layer and subsoil, the workability or friability of the soil, and the capacity of the soil to support a plant cover. Moving the soil material should be feasible. Stony soil is considered undesirable for golf fairways.

The degree of limitation for unpaved access roads, light-duty roads that have been sanded and gravelled, depends on the degree of slope, the drainage, the depth to bedrock or to a hardpan or claypan, the texture of the surface layer and the substratum, the bearing strength, the depth to the water table, the susceptibility to frost heave, the seasonal flooding hazard, and the number of stones and rock outcrops.

The degree of limitation for ski areas, slopes that have been selected and maintained for skiing, depends on the length of the slope, the drainage, the erodibility of the soil, the size and number of stones and rock outcrops, the texture of the soil, the depth to bedrock, the amount of seepage, and the capacity of the soil to support a cover of short grass. The gradients also have to be considered—not more than 15 percent for beginners. between 15 and 35 percent for those of intermediate skill, and more than 25 percent for experts. Although a limitation in some places, the slope aspect has not been considered.

Formation and Classification of the Soils

This section discusses the factors of soil formation and the classification of the soils in Androscoggin County and Sagadahoc County by higher categories. It also groups the soils into catenas.

Formation of the Soils

Soil is formed by the interaction of climate, plant and animal life, parent material, and relief over a period of time. Each of these factors modifies the effect of the other four. Significant differences in any one of the factors result in differences in soil characteristics.

Climate and plant and animal life are the active forces in soil formation. Relief, mainly by its influence on runoff and temperature, modifies the effects of climate and plant and animal life. The parent material also affects the kind of profile that can be formed and, in extreme cases, determines it almost entirely. Finally, time is needed for the changing of the parent material into soil.

Climate

The climate of Androscoggin and Sagadahoc Counties is cool and humid. It is characterized by long winters and short summers and is moderated by the Atlantic Ocean. The average precipitation is about 43 inches a year; about one-fourth is snow. Many days in spring and fall are foggy in the coastal section of Sagadahoc County.

The abundant rainfall has made a large amount of water available for leaching; as a result, all the soils lack carbonates and are very low in soluble bases. Frost action has promoted the breaking up and mixing of soil material. The average depth of frost in open fields is 24 inches, but depths of 5 and 6 feet are common in roads, driveways, and other areas of heavy traffic. Observation of soils in the Paxton series indicates that the average depth of frost penetration each year also influences the depth to a fragipan.

Plant and animal life

Plants, bacteria, fungi, earthworms, and other forms of life that live on or in the soil are active in the soil-forming process.

Some trees bring bases in appreciable amounts from the parent material to the surface as organic matter in the form of fallen leaves and stems. Fallen trees and burrowing animals bring weathered fragments of stones and other soil material to the surface where they are subject to more rapid and more intensive chemical and physical weathering. Bacteria and fungi break down the organic matter into simpler compounds, and earthworms cycle mineral and organic matter through the soil. In this way plant and animal life eventually influences the chemical and physical composition of the soil.

The effect of earthworm activity is easily observed in the poorly drained Limerick and Leicester soils, which formed under a young forest, consisting of alders, elm, and red maple.

Parent material

The parent material of the soils in this two-county area was the product of glacial action.

About half the soils formed in glacial till. The till was derived mostly from schist but contains varying amounts of material weathered from granite and gneiss. Charlton soils are examples of soils that formed in schistose till.

Many of the soils in this area formed in glacial outwash. Water from melting glaciers carried large quantities of soil material that had been imbedded in the ice, sorted it according to particle size, and then deposited the particles in layers of varying thickness. The outwash ranges from the well-sorted fine sands, in which the Adams, Hartland, and Ninigret soils formed, to the poorly sorted, coarse gravel, in which the Hinckley soils formed.

The Suffield, Buxton, Scantic, Biddeford, Melrose, Elmwood, Swanton, and Whately soils formed in the material deposited in fresh-water lakes and on terraces. This material weathered from schist, granite, sandstone, and shale. It is very high in mica.

Some of the soils formed in alluvium, which consists of material washed from the soils previously described and deposited along streams. Some of the soils on stream terraces lie above floodwaters. Others are flooded fre-

quently, among which are the Hadley, Winooski, Limerick, and Saco soils, which occur along the Androscoggin River.

The organic soils, Peat and Muck, formed in the partly decomposed plant materials that had accumulated in depressions.

Relief

Relief influences the depth of soil development through its effect on drainage, runoff, and erosion. Generally the steeper the slope, the shallower the soil.

There is a series of till ridges, which are occupied mainly by Paxton soils, in the western half of Androscoggin County, and a few ridges, occupied mainly by Charlton soils, in the towns of Bowdoin, Webster, and Wales, along the Androscoggin-Sagadahoc county line. These ridges have steep side slopes and broad rounded tops. They are drained by a massive system of small brooks and streams. On these slopes the effects of relief on soil development have been slight, and the soils are moderately deep and deep.

Along both sides of the Androscoggin River, and back along the smaller rivers, is an extensive system of river terraces and sandy outwash plains. Many of the level soils on the outwash plains have little or no runoff, for example, the Walpole and Scarboro soils. These soils are deep, poorly drained and very poorly drained, and deeply leached.

In the towns of Durham and Auburn in Androscoggin County, and those of Topsham, Bowdoinham, and Richmond in Sagadahoc County, most of the soils developed in lacustrine silt and clay. After the Suffield and Buxton soils rose above the water level, they were subjected to severe geologic erosion. The topography now is very irregular. There are many narrow valleys and short, steep and very steep slopes. Most of the nearly level areas are occupied by the poorly drained Scantic soils.

Along the coast of Sagadahoc County, the topography is very sharp and irregular. The soils are mostly shallow over bedrock and are less than 100 feet above sea level.

Time

Compared with soils in unglaciated areas, the soils in Androscoggin and Sagadahoc Counties are relatively young. They have been forming for only 8,000 to 12,000 years. Most of the soil materials, such as glacial till, glacial outwash, and lake deposits, were left after the glaciers melted and the lakes dried up. Alluvium and the plant remains in bogs and swamps are of recent origin and are being deposited at the present time. Soils that formed in these recent materials, such as the Hadley and Ondawa, have very weak horizons and almost no profile development. Conversely, soils that formed in older material such as the Charlton and Hartland, have most strongly developed horizons.

Classification of the Soils

Soils are classified so that we can more easily remember their significant characteristics, assemble knowledge about them, see their relationships to one another, and understand their behavior and their response to the whole environment. Through classification and the use of soil maps, we can apply our knowledge of soils to specific fields and other tracts of land.

Two systems of classifying soils above the series level have been used in the United States in recent years. The older system was adopted in 1938 (*2*) and revised later (*7*). The system currently used by the National Cooperative Soil Survey was adopted in 1965 and is under continual study. Readers interested in the development of the system should refer to the latest literature available (*6, 8*).

The current system consists of six categories. Beginning with the most inclusive, these categories are the order, the suborder, the great group, the subgroup, the family, and the series. The criteria for classification are soil properties that are measurable or observable, but the properties are selected so that soils of similar genesis are grouped together. Placement of some series in the current system of classification, particularly in families, may change as more precise information becomes available.

Table 8 shows the classification of the soil series in Androscoggin and Sagadahoc Counties according to the current system, but the great group is not shown because the name of the great group is the last word in the name of the subgroup. The categories of this system are defined briefly in the following paragraphs.

ORDER.—Soils are grouped into orders according to properties that seem to have resulted from the same processes acting to about the same degree on the parent material. Ten soil orders are recognized in the current system: Entisols, Vertisols, Inceptisols, Aridisols, Mollisols, Spodosols, Alfisols, Ultisols, Oxisols, and Histosols. The Entisols, Inceptisols, Spodosols, and Alfisols are represented in Androscoggin and Sagadahoc Counties.

Entisols are recent soils in which there has been little, if any, horizon development.

Inceptisols occur mostly on young, but not recent, land surfaces.

Spodosols are mineral soils that have an illuvial accumulation of free sesquioxides, free iron, or organic carbon with other compounds in various combinations.

Alfisols contain accumulated aluminum and iron, have argillic or natric horizons, and have a base saturation of more than 35 percent.

SUBORDER.—Each order is divided into suborders, primarily on the basis of soil characteristics that indicate genetic similarity. The suborders have a narrower climatic range than the order. The criteria for suborders reflect either the presence or absence of waterlogging or soil differences resulting from climate or vegetation.

GREAT GROUP.—Each suborder is divided into great groups, on the basis of uniformity in kind and sequence of genetic horizons.

SUBGROUP.—Each great group is divided into subgroups, one representing the central (typic) concept of the group, and the other subgroups, called intergrades, made up of soils that have mostly the properties of one great group but also one or more properties of another great group.

FAMILIES.—Families are established within subgroups, primarily on the basis of properties important to plant growth. Some of these properties are texture, mineralogy, reaction, soil temperature, permeability, consistence, and thickness of horizons.

TABLE 8.—*Soil series in Androscoggin and Sagadahoc Counties classified into higher categories*

Series	Family	Subgroup	Suborder	Order
Adams	Sandy, mixed, frigid	Typic Haplorthods	Orthods	Spodosols.
Agawam	Coarse-loamy, mixed, mesic	Entic Haplorthods	Orthods	Spodosols.
Belgrade	Coarse-silty, mixed, mesic	Aquentic Haplorthods	Orthods	Spodosols.
Biddeford	Fine, illitic, nonacid, mesic	Humic Haplaquepts	Aquepts	Inceptisols.
Buxton	Fine, mixed, mesic	Aquic Dystric Eutrochrepts	Ochrepts	Inceptisols.
Charlton	Coarse-loamy, mixed, mesic	Entic Haplorthods	Orthods	Spodosols.
Elmwood	Coarse-loamy over clayey, mixed, mesic	Aquentic Haplorthods	Orthods	Spodosols.
Hadley	Coarse-silty, mixed, mesic	Fluventic Dystrochrepts	Ochrepts	Inceptisols.
Hartland	Coarse-silty, mixed, mesic	Entic Haplorthods	Orthods	Spodosols.
Hinckley	Sandy skeletal, mixed, mesic	Entic Haplorthods	Orthods	Spodosols.
Hollis	Loamy, mixed, mesic	Entic Lithic Haplorthods	Orthods	Spodosols.
Leicester	Coarse-loamy, mixed, acid, mesic	Typic Haplaquepts	Aquepts	Inceptisols.
Limerick	Coarse-silty, mixed, nonacid, mesic	Fluventic Haplaquepts	Aquepts	Inceptisols.
Melrose	Coarse-loamy over clayey, mixed, mesic	Entic Haplorthods	Orthods	Spodosols.
Merrimac	Sandy, mixed, mesic	Entic Haplorthods	Orthods	Spodosols.
Ninigret	Coarse-loamy, mixed, mesic	Aquentic Haplorthods	Orthods	Spodosols.
Ondawa	Coarse-loamy, mixed, mesic	Fluventic Dystrochrepts	Ochrepts	Inceptisols.
Paxton	Coarse-loamy, mixed, mesic	Entic Fragiorthods	Orthods	Spodosols.
Podunk	Coarse-loamy, mixed, mesic	Aquic Fluventic Dystrochrepts	Ochrepts	Inceptisols.
Saco	Coarse-loamy, mixed, nonacid, mesic	Fluventic Haplaquepts	Aquepts	Inceptisols.
Scantic	Fine, mixed, mesic	Typic Ochraqualfs	Aqualfs	Alfisols.
Scarboro	Mixed, mesic	Mollic Psammaquents	Aquents	Entisols.
Suffield	Coarse-silty over clayey, mixed, mesic	Dystric Eutrochrepts	Ochrepts	Inceptisols.
Sutton	Coarse-loamy, mixed, mesic	Aquentic Haplorthods	Orthods	Spodosols.
Swanton	Coarse-loamy over clayey, mixed, nonacid, mesic.	Aeric Haplaquepts	Aquepts	Inceptisols.
Walpole	Coarse-loamy, mixed, acid, mesic	Humic Haplaquepts	Aquepts	Inceptisols.
Whately	Coarse-loamy over clayey, mixed, nonacid, mesic.	Mollic Haplaquepts	Aquepts	Inceptisols.
Whitman	Coarse-loamy, mixed, mesic	Typic Fragiaquepts	Aquepts	Inceptisols.
Winooski	Coarse-silty, mixed, mesic	Aquic Fluventic Dystrochrepts	Ochrepts	Inceptisols.
Woodbridge	Coarse-loamy, mixed, mesic	Aquentic Fragiorthods	Orthods	Spodosols.

Soil catenas

A catena consists of a group of soils that formed in similar parent material but have unlike characteristics because of differences in relief and drainage. It is a grouping of soils that are closely associated on the landscape. Table 9 shows the soil series in Androscoggin County and Sagadahoc County grouped into catenas.

General Nature of the Area

Androscoggin and Sagadahoc Counties have been principally grassland farming areas since they were first settled in the early 1600's. They have been a major source of livestock feed for markets in Boston and New York. The soils, the climate, and the location in relation to markets are favorable. At present there are many farms in the two-county area. Dairy farms and poultry farms predominate, and apple orchards are an increasingly important farm enterprise.

Among the industries are many dairy processing and marketing plants, a fertilizer-mixing plant, an insulation-board and ceiling-tile factory, sawmills, and along the Androscoggin River from Topsham to Livermore Falls, textile mills, shoeshops, and pulp and paper mills. There is also shipbuilding at Bath.

Transportation is provided by interstate and local buslines, railroads, and from the city of Auburn, limited airline service. Among the 4-lane highways serving these counties are the Maine Turnpike, Interstate 95, and U.S. 1.

Physiography, Relief, and Drainage

Sagadahoc County and the southern half of Androscoggin County are part of the New England Shore, and the northern half of Androscoggin County is part of the Bangor Lowland, a section of the New England Seaboard Lowland (*3*).

Androscoggin County is dissected by the Androscoggin River and its four tributary rivers. Between these rivers are large, round-top ridges that have steep side slopes. Sagadahoc County is characterized by a series of long narrow ridges that have sharp, irregular relief. Between the ridges are wide areas of lacustrine and marine silt and clay sediments that have been dissected by streams and rivers.

The elevation ranges from 500 to 900 feet above sea level in Androscoggin County and from less than 200 feet to 500 feet above sea level in Sagadahoc County. The highest elevation in Androscoggin County is along the western border and in Sagadahoc County in the northwestern corner.

Natural drainage patterns in some areas of both counties are weakly developed, and many small areas have little or no surface drainage. There are 23 lakes and ponds in Androscoggin County and 10 in Sagadahoc County.

TABLE 9.—*Soil catenas in Androscoggin County and Sagadahoc County*

Parent material	Excessively drained soil	Well drained soil		Moderately well drained soil	Poorly drained soil	Very poorly drained soil
		Shallow to bedrock	Deep			
Glacial till:						
Friable to firm		Hollis	Charlton	Sutton	Leicester	Whitman.
Compact			Paxton	Woodbridge		
Lacustrine sediments:						
Loamy over clayey sediment			Suffield	Buxton	Scantic	Biddeford.
Interstratified silts and very fine sands.			Hartland	Belgrade		
Medium sands, 20 to 40 inches deep over clay.			Melrose	Elmwood	Swanton	Whately.
Glaciofluvial materials:						
Loamy sands	Adams					
Sandy over gravel	Hinckley		Agawam and Merrimac.	Ninigret	Walpole	Scarboro.
Alluvial materials:						
Silts and very fine sands			Hadley	Winooski	Limerick	Saco.
Fine and medium sands			Ondawa	Podunk		
Organic materials						Peat and Muck.[1]

[1] Not classified in soil series.

Climate[4]

The climate in Androscoggin and Sagadahoc Counties is characterized by cool to moderately warm summers and cold winters. Rainfall is ample and distributed fairly evenly. The temperature varies greatly from winter to summer and from day to night, and day-to-day variations are common. The sky is clear 34 percent of the time, cloudy 50 percent of the time, and partly cloudy 16 percent of the time. The average relative humidity ranges from 71 percent in March to 79 in November; the yearly average is 75 percent. The prevailing wind is northwesterly or northeasterly in winter and southwesterly in summer. Hurricane winds or rains heavy enough to cause damage occur only about once a decade, and the chance of a tornado striking a given point in any year is estimated to be much less than one in a thousand.

The climate, particularly in the coastal areas of Sagadahoc County, is affected by the Atlantic Ocean, but generally the influence of the continent is greater than that of the ocean. Local variations result from differences in elevation and topography, from differences in soil types, and from nearness to an inland pond, lake, or other body of water.

Table 10 shows data on temperature and precipitation from the ESSA Weather Bureau Station at Lewiston in Androscoggin County and from the Naval Air Station at Brunswick in Cumberland County. These data are representative of Androscoggin and Sagadahoc Counties.

The temperature data in table 10 do not include the extreme high and low temperature of record, but they do include temperatures that can be expected to occur 4 days a month 2 years in 10. These probable temperatures can be used to estimate temperature extremes to be expected, and they may be more useful than extreme temperatures for planning farm operation. The number of days in summer when the temperature reaches 90° F. ranges from 0 to more than 16 in inland areas and from 0 to 10 in coastal areas; the average is about 6. Nights are nearly always cool, even in the warmest summers.

Table 11 shows, by months, the average frequency of specified temperatures and the number of heating degree-days and of growing degree-days. The temperature selected as a base and the method used to compute the number of degree-days depend upon the purpose. For example, in computing the heating degree-days, a base of 65° F. is used because it is the lowest average daily temperature at which no heat is required for homes, and lower average temperatures are subtracted from it. Thus, for heating purposes an average temperature of 55° for 1 day has a value of 10 degree-days. In computing the growing degree-days, a base of 40° is used for cool-weather crops, such as grass, potatoes, and peas, and 50° for warm-weather crops, such as corn, because these are the lowest average temperatures at which these crops grow. But the base temperature is subtracted from higher average temperatures. Thus, a day on which the average temperature is 60° has a value of 20 degree-days for cool-weather crops and a value of 10 degree-days for warm-weather crops.

The average length of the freeze-free season ranges from approximately 130 days in the northern part of Androscoggin County to 170 days in the more protected urban and coastal areas. There are local variations, especially in low "frost pockets," where the season is shorter. A temperature of 32° is usually seriously damaging to sensitive plants, though not to hardier ones. The probability of temperatures of 32° and lower later than specified dates in spring and earlier than specified dates in fall is given in table 12, page 82.

[4] Prepared by R. E. LAUTZENHEISER, State climatologist, Weather Bureau, Environmental Science Services Administration, Boston, Mass.

TABLE 10.—*Temperature and precipitation data*

[Based on 83-year record for temperature and 93-year record for precipitation at Lewiston; and on 16-year record at Brunswick]

Month	Temperature					Precipitation						
	Average daily			2 years in 10 will have at least 4 days with—		Average total	1 year in 10 will have—		Average snowfall	Days with—		
	Maximum	Minimum	Mean	Maximum temperature equal to or higher than—	Minimum temperature equal to or lower than—		Less than—	More than—		Snowfall 1 inch or more	Snow cover 1 inch or more	Precipitation 0.10 inch or more
	°F.	°F.	°F.	°F.	°F.	In.	In.	In.	In.			
Lewiston, Androscoggin County; elevation 180 feet												
January	29.3	12.0	20.7	44	−6	4.03	2.2	8.3	21.8	6	27	8
February	31.2	12.9	22.1	45	−6	3.37	2.1	5.9	20.2	5	26	7
March	39.2	22.9	31.1	53	7	4.13	1.7	6.4	14.2	4	19	8
April	51.9	33.7	42.8	68	25	3.78	2.1	6.7	3.9	1	1	8
May	65.0	44.2	54.6	81	35	3.33	.9	6.9	.3	[1]	[1]	7
June	74.0	54.0	64.0	87	46	3.23	1.0	5.7	0	0	0	7
July	79.7	60.2	70.0	90	53	3.39	1.2	6.0	0	0	0	6
August	78.5	58.7	68.6	90	50	2.76	1.1	4.9	0	0	0	6
September	69.8	50.6	60.2	85	39	3.65	1.2	6.8	0	0	0	6
October	59.2	40.1	49.7	74	30	3.51	.8	6.4	[2]	0	0	6
November	45.4	30.4	37.9	60	19	4.46	1.8	7.3	4.8	1	2	7
December	32.6	17.5	25.1	49	−1	3.96	1.6	6.0	12.6	4	18	7
Year	54.7	36.4	45.6	[3] 92	[4] −8	43.60	34.3	52.1	77.8	21	93	83
Brunswick, Cumberland County; elevation 70 feet												
January	31.3	13.3	22.3	44	−10	3.62	1.6	6.3	19.5	6	24	7
February	33.1	14.6	23.9	46	−6	3.84	2.4	6.3	18.2	5	23	7
March	39.7	24.2	32.0	51	8	4.18	1.5	8.4	16.0	4	18	7
April	51.7	35.2	43.5	63	26	3.66	1.9	5.5	2.6	1	1	7
May	62.1	43.8	53.0	77	34	3.37	.9	6.3	.4	[1]	[1]	8
June	71.7	53.3	62.5	86	44	3.12	1.0	6.2	0	0	0	6
July	77.2	59.2	68.2	90	50	2.78	1.8	4.4	0	0	0	6
August	75.6	57.2	66.4	87	48	3.01	1.1	6.2	0	0	0	6
September	68.3	50.1	59.2	81	36	3.41	1.1	8.1	0	0	0	6
October	58.3	40.7	49.5	75	29	3.50	1.1	7.1	.2	[1]	[1]	6
November	47.3	32.1	39.7	60	18	5.19	3.0	7.8	4.6	1	2	8
December	38.0	18.7	28.4	52	−3	4.29	1.3	6.8	13.3	4	16	7
Year	54.5	36.9	45.7	[3] 91	[4] −12	43.97	28.4	55.0	74.8	21	84	81

[1] Less than 0.5 day. [2] Trace. [3] Average annual highest maximum. [4] Average annual lowest minimum.

The average annual precipitation, including the water equivalent of snow, is roughly 44 inches, though probably a little less in low sheltered areas and somewhat more in the highest areas. Precipitation is distributed fairly evenly among the seasons though the precipitation in summer is only about 21 percent of the total. The yearly total is enough to provide abundant water for homes and industry and for the irrigation of crops in the short but fairly common dry spells.

Snowfall varies considerably from year to year and from place to place in the same year. The average total snowfall ranges from nearly 70 inches in some coastal areas to more than 80 inches in the northern part of Androscoggin County. The maximum depth of accumulated snow ranges from 5 to 30 inches along the coast and from 5 to 50 inches inland; the average is about 30 inches near the coast and about 24 inches inland. The snow cover is continuous for a period ranging from an average of 2 months near the coast to an average of 3 months in northern inland areas. According to records kept at Lewiston and Brunswick, the following are the number of times in one season when the specified amounts of snow have fallen in 1 day:

Amount of snowfall in 1 day:	*Number of times a season*
4 inches or more	2 to 11, average 6, at Lewiston; 3 to 11, average 7, at Brunswick.
6 inches or more	0 to 8, average 3, at Lewiston; 0 to 7, average 4, at Brunswick.
8 inches or more	0 to 6, average 2, at Lewiston; 0 to 4, average 2, at Brunswick.
10 inches or more	0 to 4, average 1, at Lewiston; 0 to 3, average 1, at Brunswick.

Thunderstorms vary in number from year to year, probably averaging 15 to 20 a year near the coast and 15 to more than 20 in inland areas. They are rare in winter and most frequent from May through August. Most of them do little or no damage and bring rain that benefits the crops, but some are accompanied by wind and

TABLE 11.—*Frequency of selected temperatures and average of heating degree-days and growing degree-days*

Month	Average number of days with—				Accumulated heat units		
	Maximum temperature of—		Minimum temperature of—		Heating degree-days, base 65° F.[1]	Growing degree-days	
	90° F. or higher	32° F. or lower	32° F. or higher	0° F. or lower		Base 40° F.[2]	Base 50° F.[2]
LEWISTON, ANDROSCOGGIN COUNTY							
January	0	19	30	6	1,375	0	0
February	0	15	28	4	1,200	0	0
March	0	7	28	1	1,050	30	0
April	0	(3)	13	0	665	135	15
May	(3)	0	1	0	320	460	165
June	1	0	0	0	80	725	425
July	2	0	0	0	0	935	625
August	2	0	0	0	30	895	585
September	1	0	(3)	0	160	610	310
October	0	0	5	0	475	305	80
November	0	2	19	0	815	60	0
December	0	15	29	2	1,235	0	0
Year	6	58	153	13	7,405	4,155	2,205
BRUNSWICK, CUMBERLAND COUNTY							
January	0	17	30	5	1,320	0	0
February	0	12	27	4	1,155	0	0
March	0	6	26	(3)	1,020	35	0
April	0	(3)	6	0	640	150	15
May	0	0	1	0	365	415	125
June	1	0	0	0	100	680	380
July	1	0	0	0	15	880	570
August	(3)	0	0	0	50	825	515
September	(3)	0	(3)	0	185	580	285
October	0	0	6	0	475	310	75
November	0	1	17	0	755	80	0
December	0	11	28	2	1,130	0	0
Year	2	47	135	11	7,210	3,955	1,965

[1] Heating degree-days are computed by subtracting lower daily average temperatures from the 65° base temperature.
[2] Growing degree-days are computed by subtracting the base temperature from higher daily average temperatures. 40° is used as the base temperature for cool-weather crops and 50° for warm-weather crops.
[3] Less than 0.5 day.

hail that damage crops. Generally, hailstones fall only about once or twice a year, usually during a spring or summer thunderstorm, and they are seldom large enough or numerous enough to cause extensive damage. The heavy rain that accompanies the more severe thunderstorms sometimes injures plants and erodes the soils.

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TABLE 12.—*Probability of freezing temperatures later than specified dates in spring and earlier than specified dates in fall*

Probability	Dates for given probability and temperature				
	32° F. or lower	28° F. or lower	24° F. or lower	20° F. or lower	16° F. or lower
LEWISTON, ANDROSCOGGIN COUNTY					
Spring:					
1 year in 10 later than	May 11	April 26	April 14	April 7	March 30
2 years in 10 later than	May 6	April 21	April 9	April 2	March 25
5 years in 10 later than	April 28	April 13	April 1	March 25	March 17
8 years in 10 later than	April 19	April 4	March 23	March 16	March 8
Fall:					
1 year in 10 earlier than	October 1	October 14	November 1	November 11	November 20
2 years in 10 earlier than	October 6	October 19	November 6	November 16	November 25
5 years in 10 earlier than	October 14	October 27	November 14	November 24	December 3
8 years in 10 earlier than	October 23	November 5	November 23	December 3	December 12
BRUNSWICK, CUMBERLAND COUNTY					
Spring:					
1 year in 10 later than	May 12	April 26	April 13	April 6	April 1
2 years in 10 later than	May 7	April 21	April 8	April 1	March 27
5 years in 10 later than	April 29	April 13	March 31	March 24	March 19
8 years in 10 later than	April 20	April 4	March 22	March 15	March 10
Fall:					
1 year in 10 earlier than	October 2	October 9	October 28	November 8	November 21
2 years in 10 earlier than	October 7	October 14	November 2	November 13	November 26
5 years in 10 earlier than	October 14	October 21	November 9	November 20	December 3
8 years in 10 earlier than	October 22	October 29	November 17	November 28	December 11

Glossary

Aeration, soil. The exchange of air in soil with air from the atmosphere. The air in a well-aerated soil is similar to that in the atmosphere; but that in a poorly aerated soil is considerably higher in carbon dioxide and lower in oxygen.

Aggregate, soil. Many fine particles held in a single mass or cluster, such as a clod, crumb, block, or prism.

Alluvium. Soil material, such as sand, silt, or clay, that has been deposited on land by streams.

Available water capacity. The capacity of a soil to hold water in a form available to plants. Amount of moisture held in soil between field capacity, or about one-third atmosphere of tension, and the wilting coefficient, or about 15 atmospheres of tension.

Base saturation. The degree to which material that has base-exchange properties is saturated with exchangeable cations other than hydrogen, expressed as a percentage of the cation-exchange capacity.

Clay. As a soil separate, the mineral soil particles less than 0.002 millimeter in diameter. As a soil textural class, soil material that is 40 percent or more clay, less than 45 percent sand, and less than 40 percent silt.

Clay film. A thin coating of clay on the surface of a soil aggregate. Synonyms: clay coat, clay skin.

Claypan. A compact, slowly permeable soil horizon that contains more clay than the horizon above and below it. A claypan is commonly hard when dry and plastic or stiff when wet.

Consistence, soil. The feel of the soil and the ease with which a lump can be crushed by the fingers. Terms commonly used to describe consistence are—

Loose.—Noncoherent; will not hold together in a mass.

Friable.—When moist, crushes easily under gentle pressure between thumb and forefinger and can be pressed into a lump.

Firm.—When moist, crushes under moderate pressure between thumb and forefinger, but resistance is distinctly noticeable.

Plastic.—When wet, readily deformed by moderate pressure but can be pressed into a lump; will form a "wire" when rolled between thumb and forefinger.

Sticky.—When wet, adheres to other material, and tends to stretch somewhat and pull apart, rather than to pull free from other material.

Hard.—When dry, moderately resistant to pressure; can be broken with difficulty between thumb and forefinger.

Soft.—When dry, breaks into powder or individual grains under very slight pressure.

Cemented.—Hard and brittle; little affected by moistening.

Contour farming. Plowing, cultivating, planting, and harvesting in rows that are at right angles to the natural direction of the slope or parallel to the terrace grade.

Cover crop. A close-growing crop grown primarily to improve and to protect the soil between periods of regular crop production; or a crop grown between trees and vines in orchards and vineyards.

Fragipan. A loamy, brittle, subsurface horizon that is very low in organic matter and clay but is rich in silt or very fine sand. The layer is seemingly cemented when dry, has a hard or very hard consistence, and has a high bulk density in comparison with the horizon or horizons above it. When moist, the fragipan tends to rupture suddenly if pressure is applied, rather than to deform slowly. The layer is generally mottled, is slowly or very slowly permeable to water, and has few or many bleached fracture planes that form polygons. Fragipans are a few inches to several feet thick; they generally occur below the B horizon, 15 to 40 inches below the surface.

Gleyed soil. A soil in which waterlogging and lack of oxygen have caused the material in one or more horizons to be neutral gray in color. The term "gleyed" is applied to soil horizons with yellow and gray mottling caused by intermittent waterlogging.

Grassed waterway. A natural or constructed waterway, typically broad and shallow, and covered by grass for protection against erosion; used to conduct surface water away from cropland

Green chop. Green forage that is cut with a field chopper and hauled to lots or barns for livestock feed.

Green-manure crop. A crop grown for the purpose of being turned under in an early stage of maturity or soon after maturity for soil improvement.

Horizon, soil. A layer of soil, approximately parallel to the surface, that has distinct characteristics produced by soil-forming processes.

Internal drainage. The downward movement of water through the soil profile. The rate of movement is determined by the texture, structure, and other characteristics of the soil profile and underlying layers, and by the height of the water table, either permanent or perched. Relative terms for expressing internal drainage are *none, very slow, slow, medium, rapid,* and *very rapid.*

Mottled. Irregularly marked with spots of different colors that vary in number and size. Mottling in soils usually indicates poor aeration and lack of drainage. Descriptive terms are as follows: Abundance—*few, common,* and *many;* size—*fine, medium,* and *coarse;* and contrast—*faint, distinct,* and *prominent.* The size measurements are these: *fine,* less than 5 millimeters (about 0.2 inch) in diameter along the greatest dimension; *medium,* ranging from 5 millimeters to 15 millimeters (about 0.2 to 0.6 inch) in diameter along the greatest dimension; and *coarse,* more than 15 millimeters (about 0.6 inch) in diameter along the greatest dimension.

Natural drainage. Refers to the conditions that existed during the development of the soil, as opposed to altered drainage, which is commonly the result of artificial drainage or irrigation but may be caused by the sudden deepening of channels or the blocking of drainage outlets. Seven different classes of natural drainage are recognized.

Excessively drained soils are commonly very porous and rapidly permeable and have a low water-holding capacity.

Somewhat excessively drained soils are also very permeable and are free from mottling throughout their profile.

Well-drained soils are nearly free from mottling and are commonly of intermediate texture.

Moderately well drained soils commonly have a slowly permeable layer in or immediately beneath the solum. They have uniform color in the A and upper B horizons and have mottling in the lower B and the C horizons.

Somewhat poorly drained soils are wet for significant periods but not all the time. If podzolic, they commonly have mottling below a depth of 6 to 16 inches in the lower part of the A horizon and in the B and C horizons.

Poorly drained soils are wet for long periods; they are light gray and generally mottled from the surface downward; but some may have few or no mottles.

Very poorly drained soils are wet nearly all the time. They have a dark-gray or black surface layer and are gray or light gray, with or without mottling, in the deeper parts of the profile.

Nutrient, plant. Any element taken in by a plant, essential to its growth, and used by it in the production of food and tissue. Nitrogen, phosphorus, potassium, calcium, magnesium, sulfur, iron, manganese, copper, boron, zinc, and perhaps other elements are nutrients obtained from the soil. Carbon, hydrogen, and oxygen are nutrients obtained largely from the air and water.

Parent material. The disintegrated and partly weathered rock from which a soil has formed.

Ped. An individual natural soil aggregate, such as a crumb, a prism, or a block, in contrast to a clod.

Permeability. The quality that enables a soil horizon to transmit water or air. Terms used to describe permeability are as follows: *very slow, slow, moderately slow, moderate, moderately rapid, rapid,* and *very rapid.*

Phase, soil. A subdivision of a soil type, series, or other unit in the soil classification system, made because of differences that affect management but do not affect classification. A soil type, for example, may be divided into phases because of differences in slope, stoniness, thickness, or some other characteristic that affects management.

Poorly graded. Of soil material, consisting mainly of particles of nearly the same size. Because there is little difference in the size of the particles, the density of a poorly graded soil can be increased only slightly by compaction.

Profile, soil. A vertical section of the soil through all its horizons and extending into the parent material.

Reaction, soil. The degree of acidity or alkalinity of a soil expressed in pH values. A soil that tests to pH 7.0 is precisely neutral in reaction, because it is neither acid nor alkaline. In words the degrees of acidity or alkalinity are expressed thus:

	pH		*pH*
Extremely acid	Below 4.5	Mildly alkaline	7.4 to 7.8
Very strongly acid	4.5 to 5.0	Moderately alkaline	7.9 to 8.4
Strongly acid	5.1 to 5.5	Strongly alkaline	8.5 to 9.0
Medium acid	5.6 to 6.0	Very strongly alkaline	9.1 and higher
Slightly acid	6.1 to 6.5		
Neutral	6.6 to 7.3		

Runoff. The part of the precipitation upon a drainage area that is discharged from the area in stream channels. The water that flows off the land surface without sinking in is called surface runoff; that which enters the ground before reaching surface streams is called ground-water runoff or seepage flow from ground water.

Sand. As a soil separate, individual rock or mineral fragments ranging from 0.05 to 2.0 millimeters in diameter. Most sand grains consist of quartz, but sand may be of any mineral composition. As a textural class, soil that is 85 percent or more sand and not more than 10 percent clay.

Series, soil. A group of soils developed from a particular type of parent material and having genetic horizons that, except for texture of the surface layer, are similar in differentiating characteristics and in arrangement in the profile.

Silt. As a soil separate, individual mineral particles that range in diameter from the upper limit of clay (0.002 millimeter) to the lower limit of very fine sand (0.05 millimeter). As a textural class, soil that is 80 percent or more silt and less than 12 percent clay.

Soil. A natural, three-dimensional body on the earth's surface that supports plants and that has properties resulting from the integrated effect of climate and living matter acting upon parent material, as conditioned by relief over periods of time.

Solum. The upper part of a soil profile, above the parent material, in which the processes of soil formation are active. The solum in mature soil includes the A and B horizons. Generally, the characteristics of the material in these horizons are unlike those of the underlying material. The living roots and other plant and animal life characteristic of the soil are largely confined to the solum.

Stripcropping. Growing crops in a systematic arrangement of strips, or bands, to serve as vegetative barriers to wind and water erosion.

Structure, soil. The arrangement of primary soil particles into compound particles or clusters that are separated from adjoining aggregates and have properties unlike those of an equal mass of unaggregated primary soil particles. The principal forms of soil structure are—*platy* (laminated), *prismatic* (vertical axis of aggregates longer than horizontal), *columnar* (prisms with rounded tops), *blocky* (angular or subangular), and *granular. Structureless* soils are (1) *single grain* (each grain by itself, as in dune sand) or (2) *massive* (the particles adhering together without any regular cleavage, as in many claypans and hardpans).

Subsoil. Technically, the B horizon; roughly, the part of the profile below plow depth.

Substratum. Any layer beneath the solum, or true soil; the C horizon.

Surface soil. The soil ordinarily moved in tillage, or its equivalent in uncultivated soil, about 5 to 8 inches in thickness. The plowed layer.

Tilth, soil. The condition of the soil in relation to the growth of plants, especially soil structure. Good tilth refers to the friable state and is associated with high noncapillary porosity and stable, granular structure. A soil in poor tilth is nonfriable, hard, nonaggregated, and difficult to till.

Well graded. Of soil material, consisting of particles that are well distributed over a wide range in size or diameter. The density and bearing properties of a well-graded soil normally can easily be increased by compaction.

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U. S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

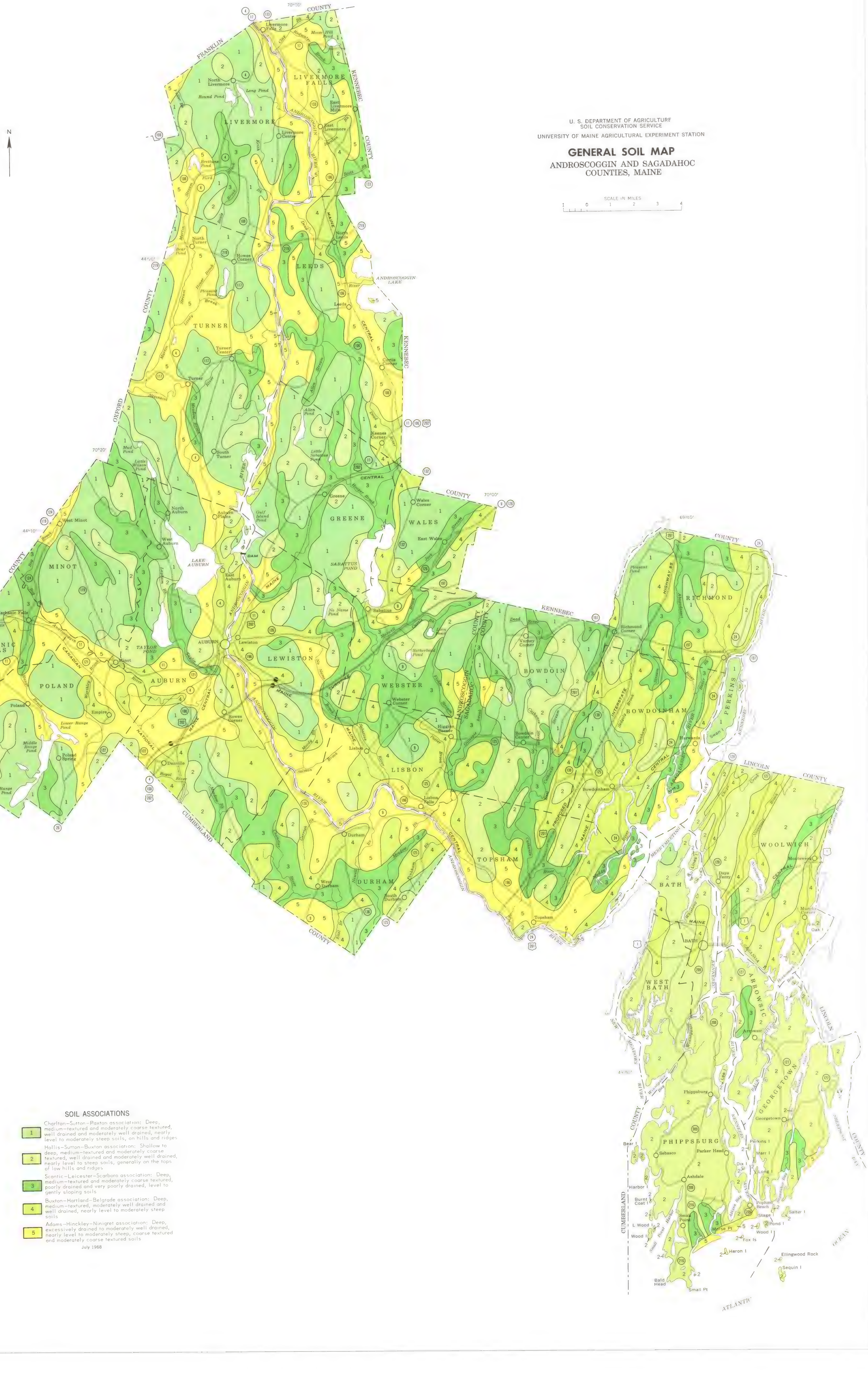
UNIVERSITY OF MAINE AGRICULTURAL EXPERIMENT STATION

GENERAL SOIL MAP

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE

SCALE IN MILES
1 0 1 2 3 4

N



SOIL ASSOCIATIONS

1. Charlton–Sutton–Paxton association: Deep, medium–textured and moderately coarse textured, well drained and moderately well drained, nearly level to moderately steep soils, on hills and ridges
2. Hollis–Sutton–Buxton association: Shallow to deep, medium–textured and moderately coarse textured, well drained and moderately well drained, nearly level to steep soils, generally on the tops of low hills and ridges
3. Scantic–Leicester–Scarboro association: Deep, medium–textured and moderately coarse textured, poorly drained and very poorly drained, level to gently sloping soils
4. Buxton–Hartland–Belgrade association: Deep, medium–textured, moderately well drained and well drained, nearly level to moderately steep soils
5. Adams–Hinckley–Ninigret association: Deep, excessively drained to moderately well drained, nearly level to moderately steep, coarse textured and moderately coarse textured soils

July 1968

GUIDE TO MAPPING UNITS

For a full description of a mapping unit, read both the description of the mapping unit and that of the soil series to which the mapping unit belongs. A discussion of the capability classification system begins on page 36, and that of the woodland groups begins on page 56. Other information is given in tables as follows:

Acreage and extent, table 1, page 6.
Estimated yields, table 2, page 40.

Engineering properties and engineering interpretations, tables 3, 4, and 5, pages 42 through 55.

Suitability for wildlife habitat, table 6, page 58.
Limitations for community and recreational facilities, table 7, page 62.

Map symbol	Mapping unit	Described on page	Capability unit	Woodland group		Wildlife group
			Symbol	Number	Page	Number
AaB	Adams loamy sand, 0 to 8 percent slopes	8	IIIs-5	1	56	5
AaC	Adams loamy sand, 8 to 15 percent slopes	8	IVs-5	1	56	5
AaD	Adams loamy sand, 15 to 30 percent slopes	8	VIs-5	1	56	8
AbD	Adams very stony loamy sand, 5 to 20 percent slopes	9	VIs-53	1	56	8
AdA	Agawam fine sandy loam, 0 to 2 percent slopes	9	I-5	3	57	1
AdB	Agawam fine sandy loam, 2 to 8 percent slopes	10	IIe-5	3	57	1
AdC	Agawam fine sandy loam, 8 to 15 percent slopes	10	IIIe-5	3	57	1
AdD	Agawam fine sandy loam, 15 to 30 percent slopes	10	IVe-5	3	57	10
BgB	Belgrade very fine sandy loam, 2 to 8 percent slopes	11	IIw-7	4	57	2
BgC	Belgrade very fine sandy loam, 8 to 15 percent slopes	11	IIIew-7	4	57	1
Bo	Biddeford silt loam	11	VIw-7	6	57	4
BuB2	Buxton silt loam, 0 to 8 percent slopes, eroded	12	IIw-7	4	57	2
BuC2	Buxton silt loam, 8 to 15 percent slopes, eroded	12	IIIew-7	4	57	1
CfB	Charlton fine sandy loam, 0 to 8 percent slopes	13	IIe-3	3	57	1
CfC2	Charlton fine sandy loam, 8 to 15 percent slopes, eroded	13	IIIe-3	3	57	1
CfD2	Charlton fine sandy loam, 15 to 25 percent slopes, eroded	13	IVe-3	3	57	10
ChB	Charlton very stony fine sandy loam, 0 to 8 percent slopes	14	VIs-3	3	57	7
ChC	Charlton very stony fine sandy loam, 8 to 15 percent slopes	14	VIs-3	3	57	7
ChD	Charlton very stony fine sandy loam, 15 to 25 percent slopes	14	VIs-3	3	57	8
Ck	Coastal beach	14	VIIIs-5	8	58	13
Du	Dune land	14	VIIIs-5	8	58	13
EmB	Elmwood fine sandy loam, 2 to 8 percent slopes	15	IIw-8	4	57	2
EmC2	Elmwood fine sandy loam, 8 to 15 percent slopes, eroded	15	IIIew-8	4	57	1
Ha	Hadley silt loam	15	I-6	3	57	1
HfB	Hartland very fine sandy loam, 2 to 8 percent slopes	17	IIe-7	3	57	1
HfC2	Hartland very fine sandy loam, 8 to 15 percent slopes, eroded	17	IIIe-7	3	57	1
HfD2	Hartland very fine sandy loam, 15 to 25 percent slopes, eroded	17	IVe-7	3	57	10
HkB	Hinckley gravelly sandy loam, 0 to 8 percent slopes	17	IIIs-5	1	56	5
HkC	Hinckley gravelly sandy loam, 8 to 15 percent slopes	18	IVs-5	1	56	5
HkD	Hinckley gravelly sandy loam, 15 to 25 percent slopes	18	VIs-5	1	56	8
HrB	Hollis fine sandy loam, 0 to 8 percent slopes	18	IIIe-1	2	57	6
HrC	Hollis fine sandy loam, 8 to 15 percent slopes	18	IVe-1	2	57	6
HrD	Hollis fine sandy loam, 15 to 45 percent slopes	19	Ve-1	2	57	8
HsB	Hollis very rocky fine sandy loam, 0 to 8 percent slopes	19	VIs-1	7	58	8
HsC	Hollis very rocky fine sandy loam, 8 to 15 percent slopes	20	VIs-1	7	58	8
HsD	Hollis very rocky fine sandy loam, 15 to 45 percent slopes	20	VIs-1	7	58	8
Lc	Leicester fine sandy loam	20	IIIw-3	5	57	3
Le	Leicester very stony fine sandy loam	21	VIIsw-3	5	57	11
Lk	Limerick silt loam	21	IIIw-6	5	57	9
Md	Made land, loamy materials	21	(1/)	8	58	13
MeB	Melrose fine sandy loam, 0 to 8 percent slopes	22	IIe-8	3	57	1
MeC	Melrose fine sandy loam, 8 to 20 percent slopes	22	IIIe-8	3	57	1
Mf	Made land, sanitary fill	21	(1/)	8	58	13
MkB	Merrimac fine sandy loam, 0 to 8 percent slopes	22	IIs-5	1	56	1
MkC2	Merrimac fine sandy loam, 8 to 15 percent slopes, eroded	23	IIIes-5	1	56	1
MkD2	Merrimac fine sandy loam, 15 to 25 percent slopes, eroded	23	IVes-5	1	56	10
NgB	Ninigret fine sandy loam, 0 to 8 percent slopes	24	IIw-5	4	57	2
On	Ondawa fine sandy loam	25	I-6	3	57	1
Pa	Peat and Muck	28	VIIw-9	8	58	14
PbB	Paxton loam, 2 to 8 percent slopes	25	IIe-4	3	57	1
PbC	Paxton loam, 8 to 15 percent slopes	25	IIIe-4	3	57	1
PbD	Paxton loam, 15 to 25 percent slopes	26	IVe-4	3	57	10
PfB	Paxton very stony loam, 0 to 8 percent slopes	26	VIs-4	3	57	7
PfC	Paxton very stony loam, 8 to 15 percent slopes	26	VIs-4	3	57	7
PfD	Paxton very stony loam, 15 to 30 percent slopes	26	VIs-4	3	57	8
Py	Podunk fine sandy loam	28	IIw-6	4	57	2
RhC	Rock land-Hollis soil material, 0 to 15 percent slopes	28	VIIs-1	8	58	13
RhD	Rock land-Hollis soil material, 15 to 45 percent slopes	28	VIIs-1	8	58	13
Sa	Saco silt loam	29	VIw-6	6	57	14
ScA	Scantic silt loam, 0 to 3 percent slopes	29	IVw-7	6	57	3
So	Scarboro fine sandy loam	29	Vw-5	6	57	4
SuC2	Suffield silt loam, 8 to 15 percent slopes, eroded	31	IIIe-7	3	57	1
SuD2	Suffield silt loam, 15 to 30 percent slopes, eroded	31	IVe-7	3	57	10
SxB	Sutton loam, 0 to 8 percent slopes	31	IIw-3	4	57	2
SxC	Sutton loam, 8 to 15 percent slopes	31	IIIew-3	4	57	1
SyB	Sutton very stony loam, 0 to 8 percent slopes	32	VIs-3	4	57	12
SyC	Sutton very stony loam, 8 to 15 percent slopes	32	VIs-3	4	57	12
SzA	Swanton fine sandy loam, 0 to 3 percent slopes	33	IIIw-8	5	57	3
Tn	Tidal marsh	33	VIIIw-99	8	58	14
Wa	Walpole fine sandy loam	34	IIIw-5	5	57	3
Wg	Whately fine sandy loam	34	Vw-8	6	57	4
Wh	Whitman loam	35	Vw-4	6	57	4
Wn	Wincoski silt loam	35	IIw-6	4	57	2
WrB	Woodbridge loam, 0 to 8 percent slopes	36	IIw-4	4	57	2
WsB	Woodbridge very stony loam, 0 to 8 percent slopes	36	VIs-4	4	57	12

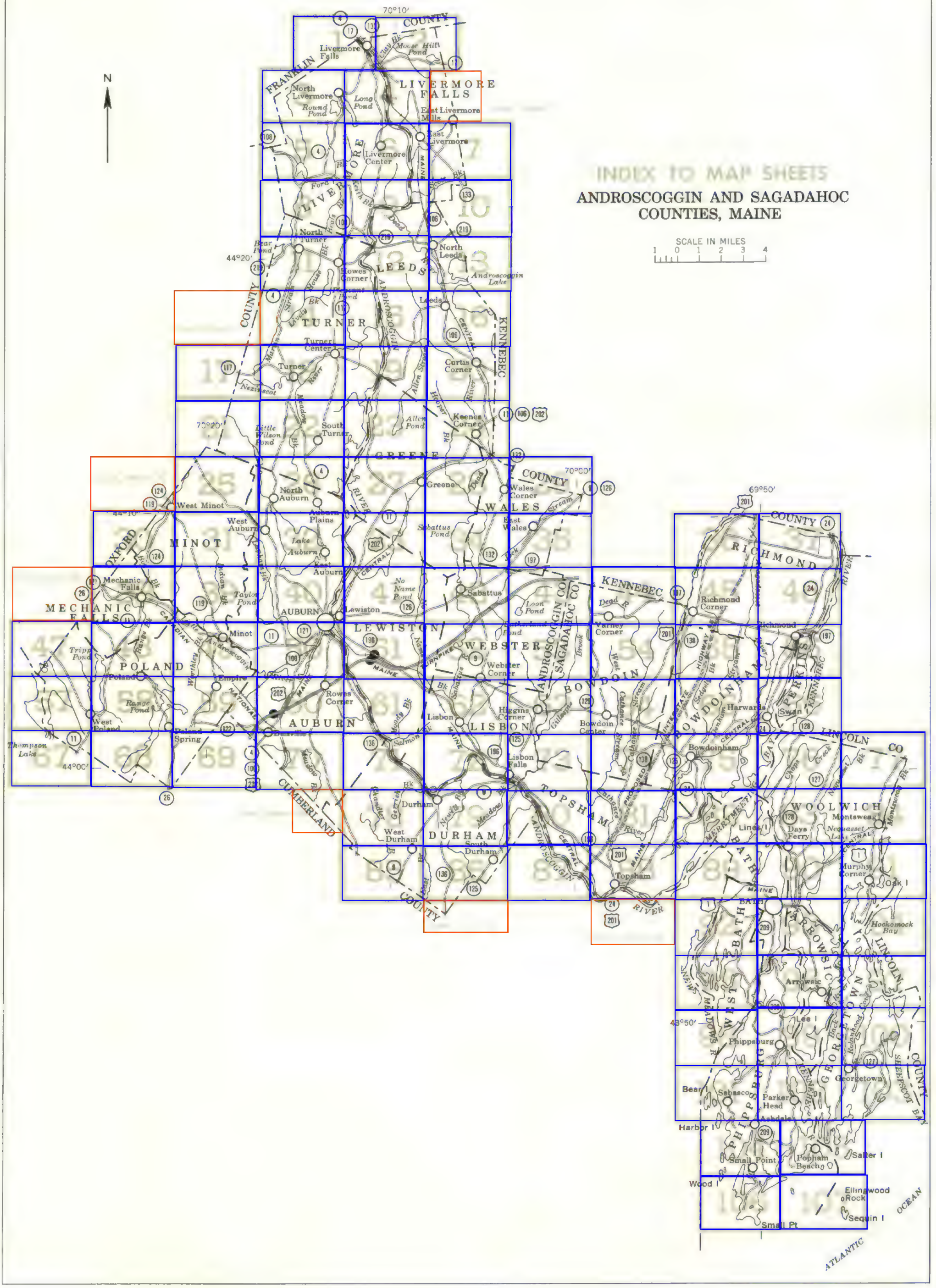
1/ Not placed in a capability unit.

310-542 O - 70 (Face cover 3)

INDEX TO MAP SHEETS

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE

SCALE IN MILES
1 0 1 2 3 4



CONVENTIONAL SIGNS

WORKS AND STRUCTURES

Highways and roads

Dual

Good motor

Poor motor

Trail

Highway markers

National Interstate

U. S.

State or county

Railroads

Single track

Multiple track

Abandoned

Bridges and crossings

Road

Trail, foot

Railroad

Ferry

Ford

Grade

R. R. over

R. R. under

Tunnel

Buildings

School

Church

Station

Mines and Quarries

Mine dump

Pits, gravel

Power line

Pipeline

Cemetery

Dams

Levee

Tanks

Sawmill

BOUNDARIES

National or state

County

Minor civil division

Reservation

Land grant

Small park, cemetery, airport

DRAINAGE

Streams, double-line

Perennial

Intermittent

Streams, single-line

Perennial

Intermittent

Crossable with tillage implements

Not crossable with tillage implements

Unclassified

Canals and ditches

Lakes and ponds

Perennial

Intermittent

Wells, water

Spring

Marsh or swamp

Wet spot

Alluvial fan

Drainage end

RELIEF

Escarpments

Bedrock

Other

Prominent peak

Depressions

	Large	Small
Crossable with tillage implements		
Not crossable with tillage implements		
Contains water most of the time		

SOIL SURVEY DATA

Soil boundary and symbol

Gravel

Stony, very stony

Rock outcrops

Chert fragments

Clay spot

Sand spot

Gumbo or scabby spot

Made land

Severely eroded spot

Blowout, wind erosion

Gully

SOIL LEGEND

The first capital letter is the initial one of the soil name. A second capital letter, A, B, C, or D, shows the slope. Most symbols without a slope letter are those of nearly level soils or land types, but some are for soils or land types that have a considerable range in slope. A final number, 2, in the symbol, shows that the soil is eroded.

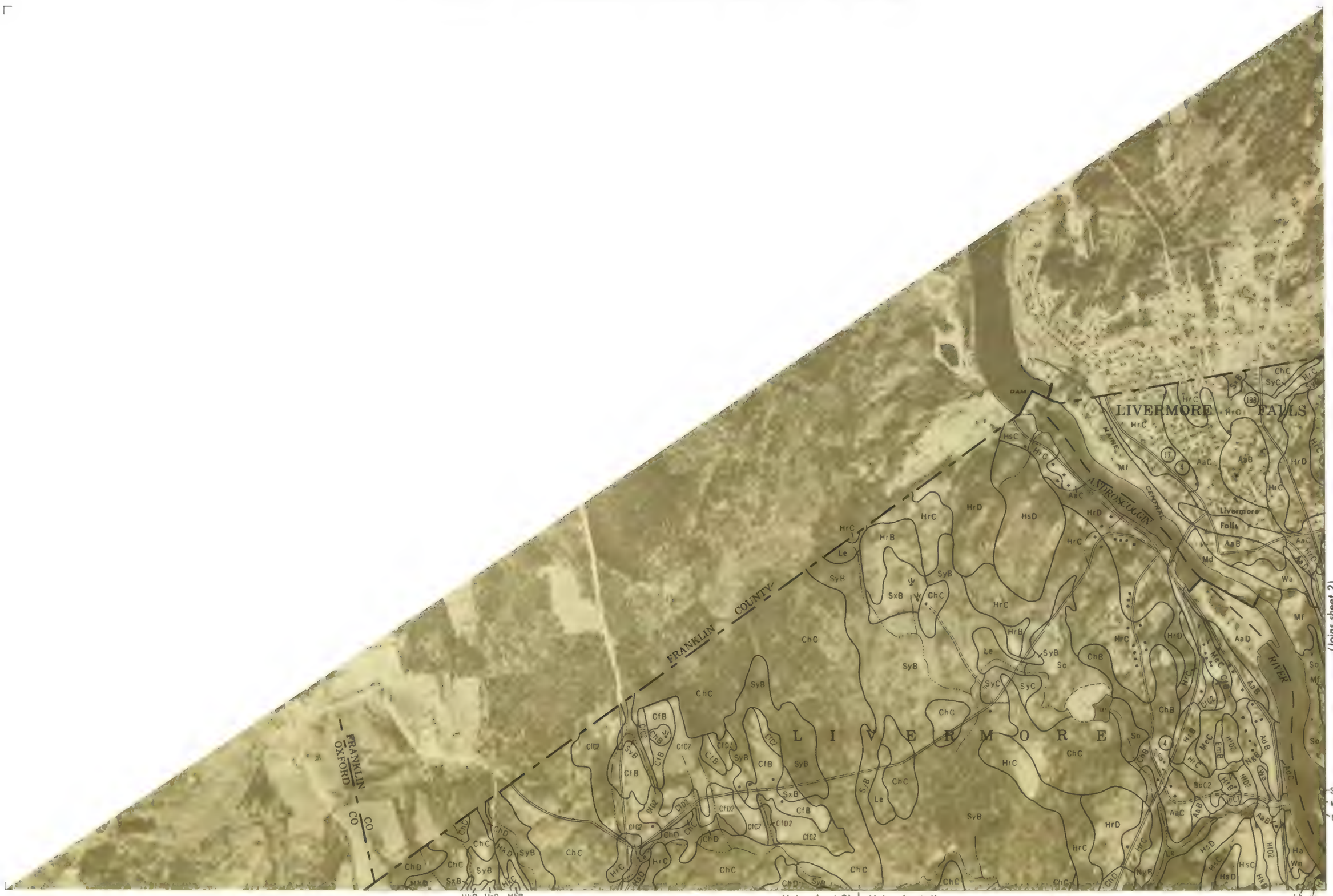
SYMBOL	NAME
AgB	Adams loamy sand, 0 to 8 percent slopes
AgC	Adams loamy sand, 8 to 15 percent slopes
AgD	Adams loamy sand, 15 to 30 percent slopes
AbD	Adams very stony loamy sand, 5 to 20 percent slopes
AdA	Agawam fine sandy loam, 0 to 2 percent slopes
AdB	Agawam fine sandy loam, 2 to 8 percent slopes
AdC	Agawam fine sandy loam, 8 to 15 percent slopes
AdD	Agawam fine sandy loam, 15 to 30 percent slopes
BgB	Belgrade very fine sandy loam, 2 to 8 percent slopes
BgC	Belgrade very fine sandy loam, 8 to 15 percent slopes
Bo	Biddeford silt loam
BuB2	Buxton silt loam, 0 to 8 percent slopes, eroded
BuC2	Buxton silt loam, 8 to 15 percent slopes, eroded
CfB	Charlton fine sandy loam, 0 to 8 percent slopes
CfC2	Charlton fine sandy loam, 8 to 15 percent slopes, eroded
CfD2	Charlton fine sandy loam, 15 to 25 percent slopes, eroded
ChB	Charlton very stony fine sandy loam, 0 to 8 percent slopes
ChC	Charlton very stony fine sandy loam, 8 to 15 percent slopes
ChD	Charlton very stony fine sandy loam, 15 to 25 percent slopes
Ck	Coastal beach
Du	Dune land
EmB	Elmwood fine sandy loam, 2 to 8 percent slopes
EmC2	Elmwood fine sandy loam, 8 to 15 percent slopes, eroded
Ha	Hadley silt loam
HfB	Hartland very fine sandy loam, 2 to 8 percent slopes
HfC2	Hartland very fine sandy loam, 8 to 15 percent slopes, eroded
HfD2	Hartland very fine sandy loam, 15 to 25 percent slopes, eroded
HkB	Hinckley gravelly sandy loam, 0 to 8 percent slopes
HkC	Hinckley gravelly sandy loam, 8 to 15 percent slopes
HkD	Hinckley gravelly sandy loam, 15 to 25 percent slopes
HrB	Hollis fine sandy loam, 0 to 8 percent slopes
HrC	Hollis fine sandy loam, 8 to 15 percent slopes
HrD	Hollis fine sandy loam, 15 to 45 percent slopes
HsB	Hollis very rocky fine sandy loam, 0 to 8 percent slopes
HsC	Hollis very rocky fine sandy loam, 8 to 15 percent slopes
HsD	Hollis very rocky fine sandy loam, 15 to 45 percent slopes

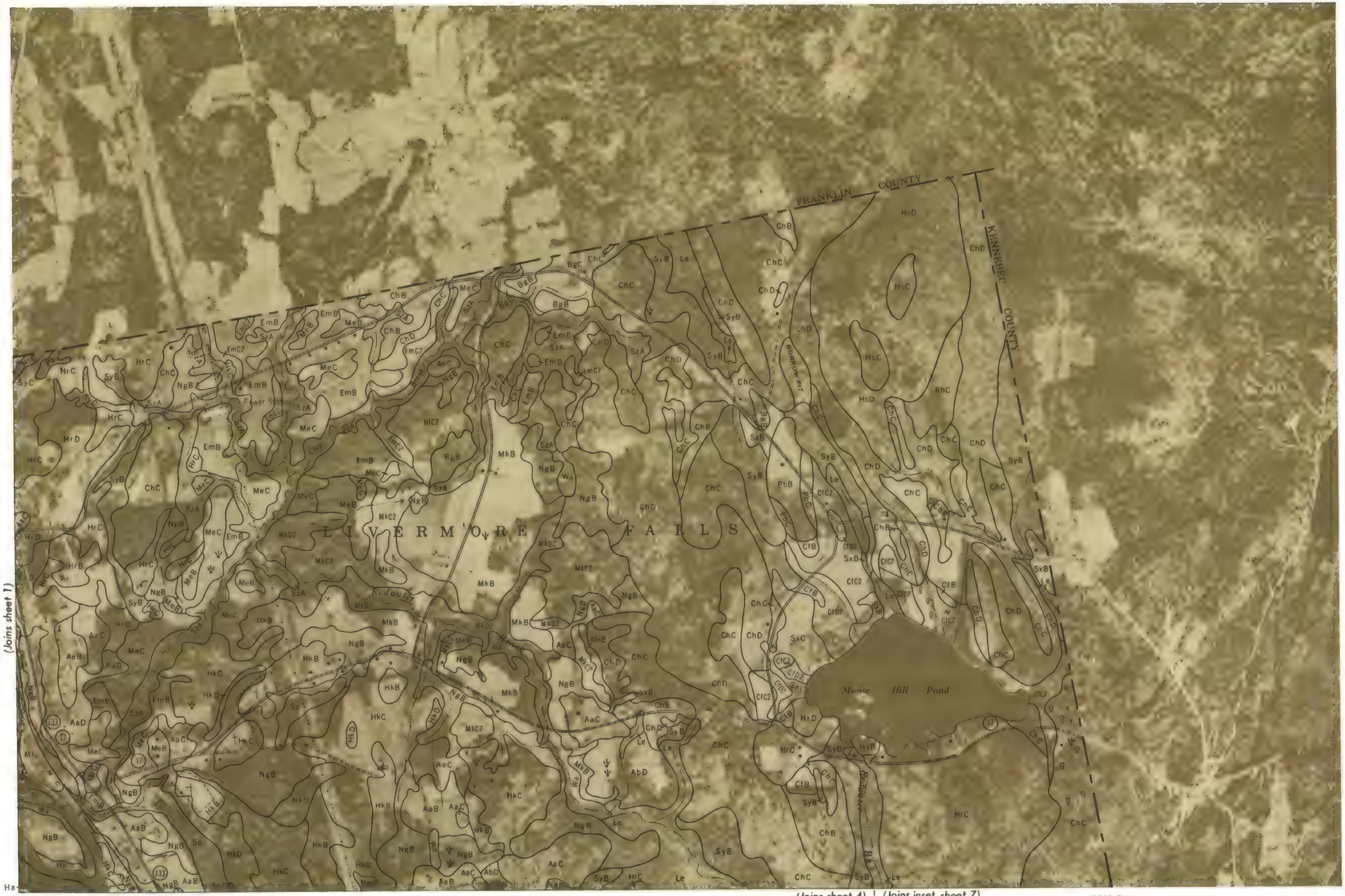
SYMBOL	NAME
Lc	Leicester fine sandy loam
Le	Leicester very stony fine sandy loam
Lk	Limerick silt loam
Md	Made land, loamy materials
MeB	Melrose fine sandy loam, 0 to 8 percent slopes
MeC	Melrose fine sandy loam, 8 to 20 percent slopes
Mf	Made land, sanitary fill
MkB	Merrimac fine sandy loam, 0 to 8 percent slopes
MkC2	Merrimac fine sandy loam, 8 to 15 percent slopes, eroded
MkD2	Merrimac fine sandy loam, 15 to 25 percent slopes, eroded
NgB	Ninigret fine sandy loam, 0 to 8 percent slopes
On	Ondawa fine sandy loam
Pa	Peat and Muck
PbB	Paxton loam, 2 to 8 percent slopes
PbC	Paxton loam, 8 to 15 percent slopes
PbD	Paxton loam, 15 to 25 percent slopes
PfB	Paxton very stony loam, 0 to 8 percent slopes
PfC	Paxton very stony loam, 8 to 15 percent slopes
PfD	Paxton very stony loam, 15 to 30 percent slopes
Py	Podunk fine sandy loam
RhC	Rock land–Hollis soil material, 0 to 15 percent slopes
RhD	Rock land–Hollis soil material, 15 to 45 percent slopes
Sa	Saco silt loam
ScA	Scantic silt loam, 0 to 3 percent slopes
So	Scarboro fine sandy loam
SuC2	Suffield silt loam, 8 to 15 percent slopes, eroded
SuD2	Suffield silt loam, 15 to 30 percent slopes, eroded
SxB	Sutton loam, 0 to 8 percent slopes
SxC	Sutton loam, 8 to 15 percent slopes
SyB	Sutton very stony loam, 0 to 8 percent slopes
SyC	Sutton very stony loam, 8 to 15 percent slopes
SzA	Swanton fine sandy loam, 0 to 3 percent slopes
Tn	Tidal marsh
Wa	Walpole fine sandy loam
Wg	Whately fine sandy loam
Wh	Whitman loam
Wn	Winooski silt loam
WrB	Woodbridge loam, 0 to 8 percent slopes
WsB	Woodbridge very stony loam, 0 to 8 percent slopes

Soil map constructed 1967 by Cartographic Division, Soil Conservation Service, USDA, from 1964 aerial photographs. Controlled mosaic based on Maine plane coordinate system, west zone, transverse Mercator projection, 1927 North American datum.

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station.

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 1



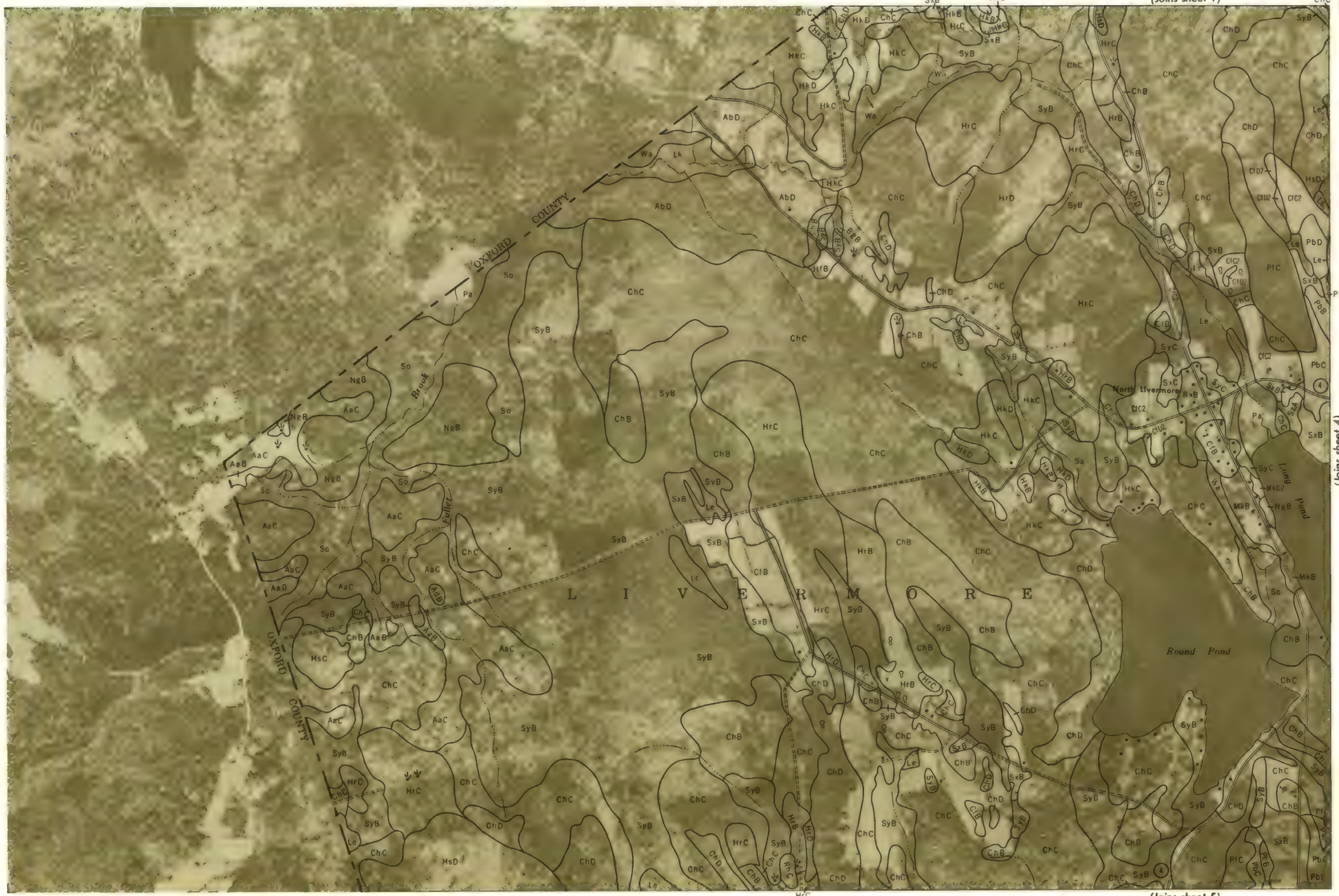


ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 2

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

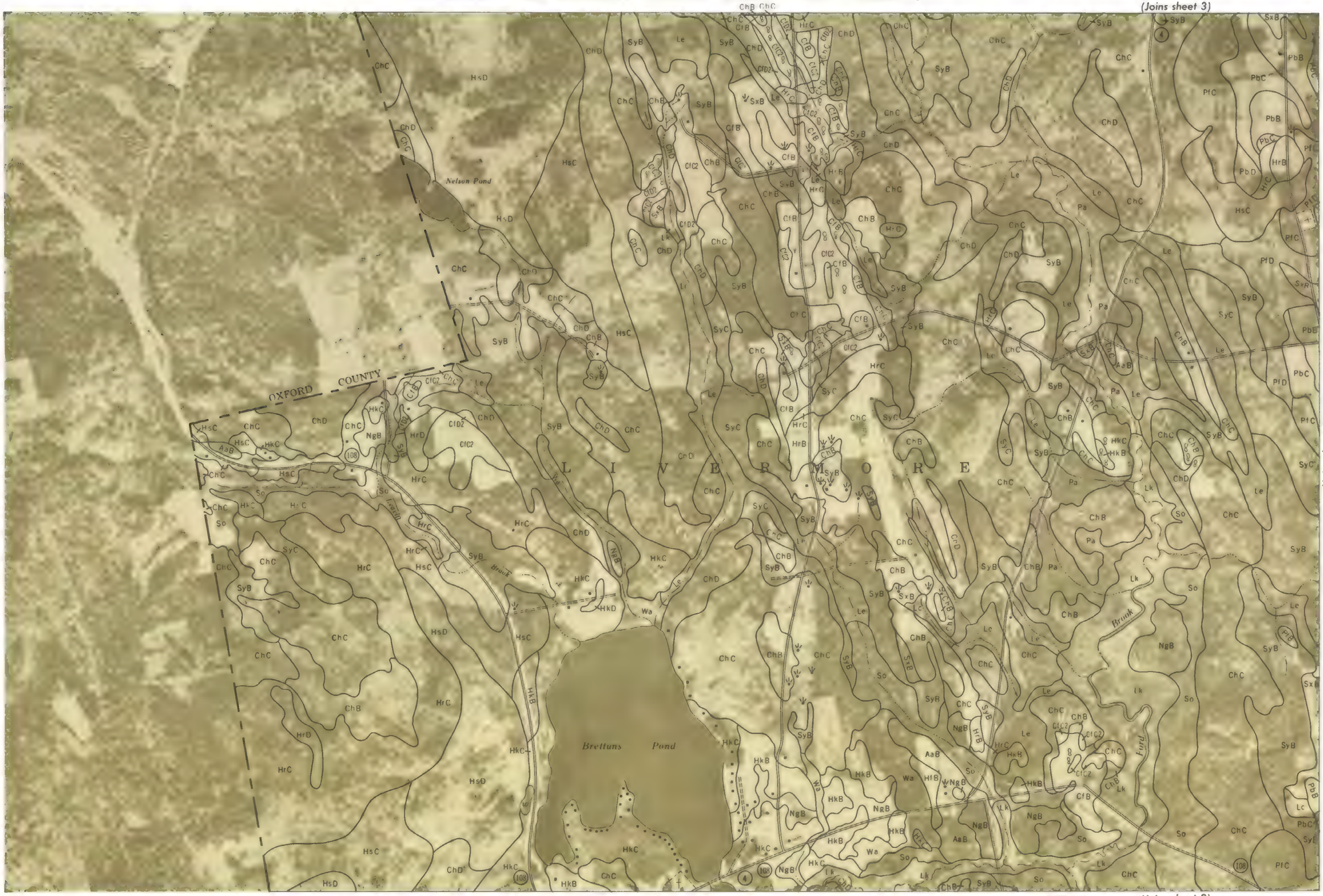
ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 3



0 ½ 1 Mile Scale 1:15 840 0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 4

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station



ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE — SHEET NUMBER 6

(6)

N

(Joins sheet 4)

(Joins sheet 5)

(Joins sheet 7)

(Joins sheet 9)

Livermore Center

Super School

East Livermore

HILLMAN FERRY

MILL BR

ANDROSCOGGIN

MAINE

LIVERMORE

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 6

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE — SHEET NUMBER 7

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 7

(Joins lower right)

(Joins sheet 6)

(Joins sheet 2)

(Joins sheet 4)

(Joins sheet 10)

(Joins upper left)

LIVERMORE FALLS

KENNEBEC COUNTY

Rock Pond

Round Pond

Turner Pond

East Livermore Mills

Hooper Brook

Billington Brook

Meadow Brook

N

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE — SHEET NUMBER 8

(8)

N

(Joins sheet 5)

(Joins sheet 9)

(Joins sheet 11)

OXFORD COUNTY

L I V E R M O R E

J U N E R

Brettuns Mills

Bradbury Pond

GRAVEL PIT

Stream

Martin

Beals

So Brook

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

This map is one of a set prepared in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 8

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 9

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 10

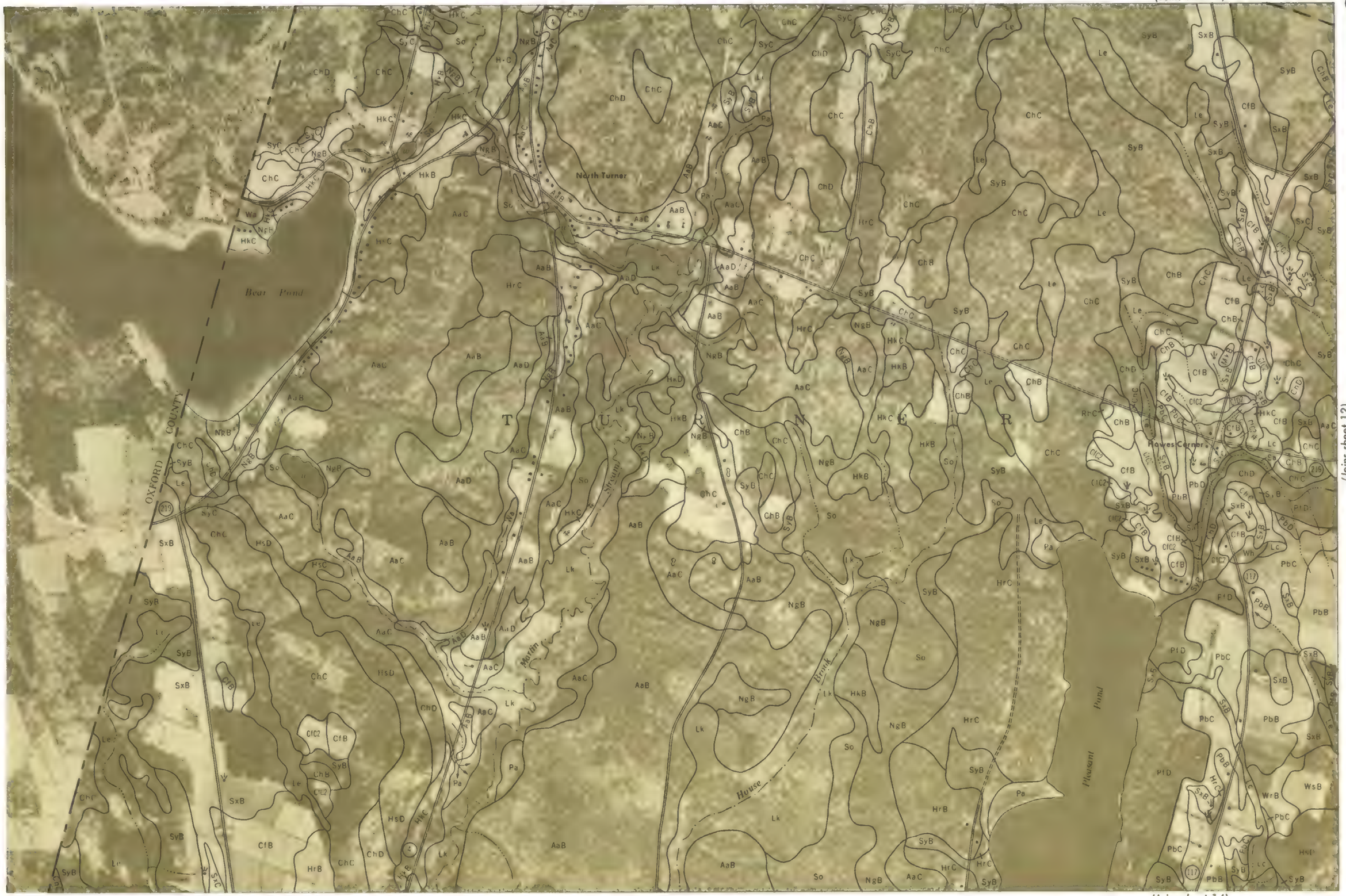
This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE — SHEET NUMBER 11

(Joins sheet 8)

(11)

N



(Joins sheet 12)

(Joins sheet 14)

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 11

12

N

(Joins sheet 9)

(Joins sheet 11)

(Joins sheet 13)

(Joins sheet 15)

LIVERMORE

TURNER

LEEDS

ANDROSCOGGIN RIVER

ANDROSCOGGIN RIVER

0 ½ 1 Mile

Scale 1:15 840

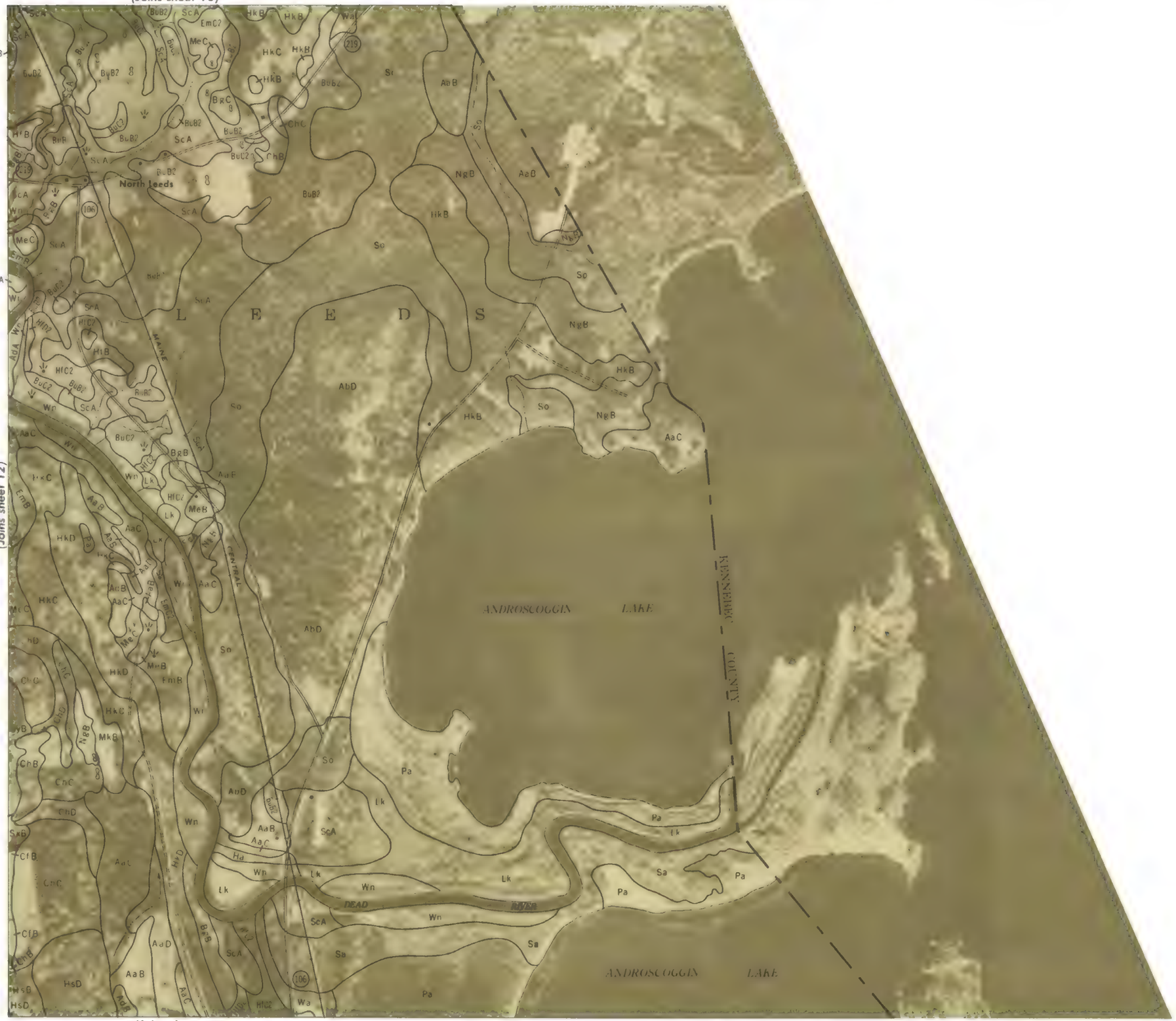
0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 12

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 10)



(Joins sheet 12)

(Joins sheet 16)

N

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

(Joins sheet 11)

(Joins inset, sheet 17)

(Joins sheet 15)

(Joins sheet 18)

N

Scale 1:15 840

0 ½ 1 Mile

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 14

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 12)

N

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(16)

(Joins sheet 13)

(Joins sheet 15)

N

ANDROSCOGGIN LAKE

Lothrop Island

Boothby Hill

KENNEBEC COUNTY

MAINE CENTRAL LEEDS

(Joins sheet 20)

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 16

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

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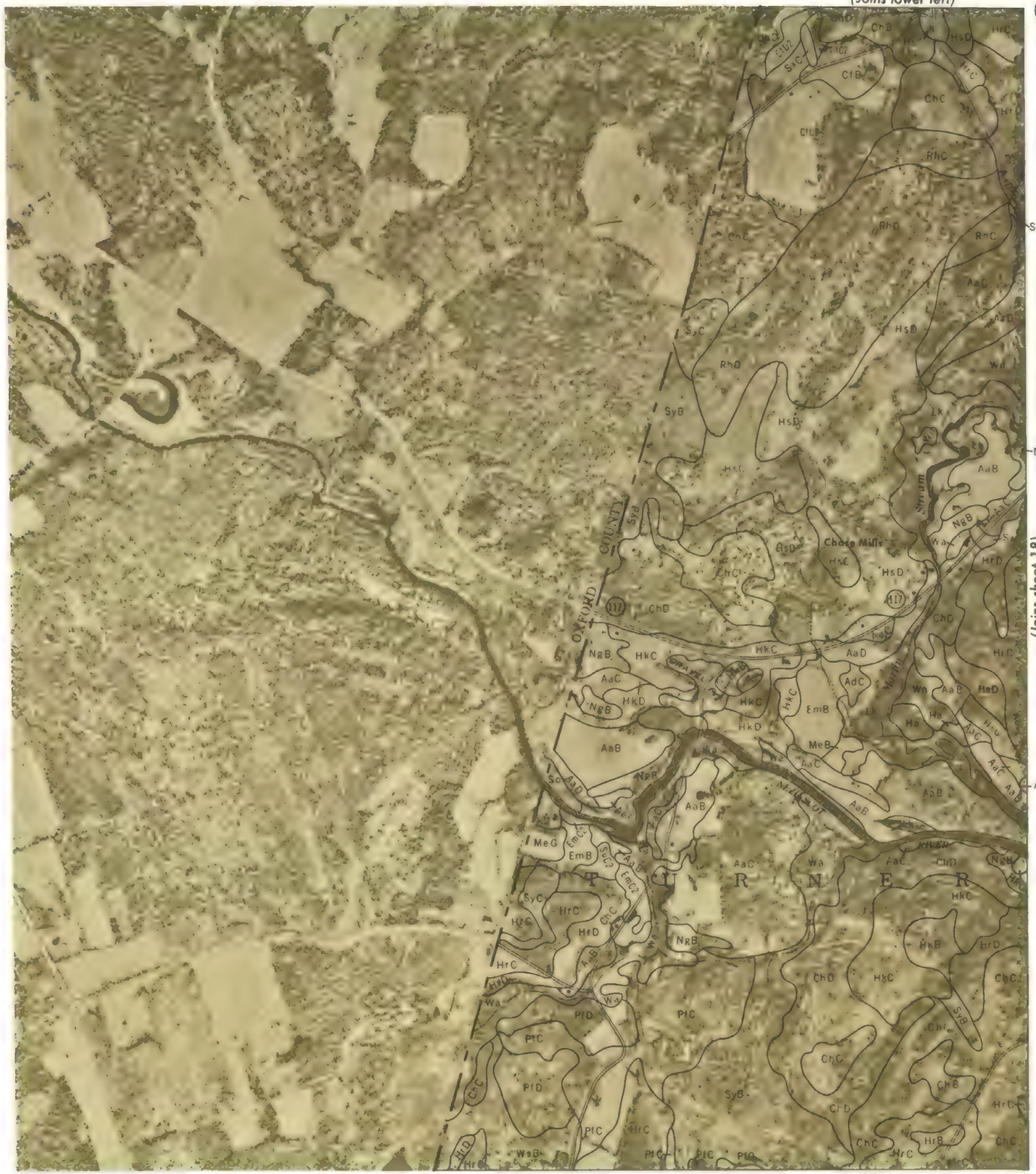
ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 17

(Joins sheet 14)

(Joins upper right)



(Joins lower left)

(Joins sheet 18)

(Joins sheet 21)

N

0 ½ 1 Mile

Scale 1:15 840

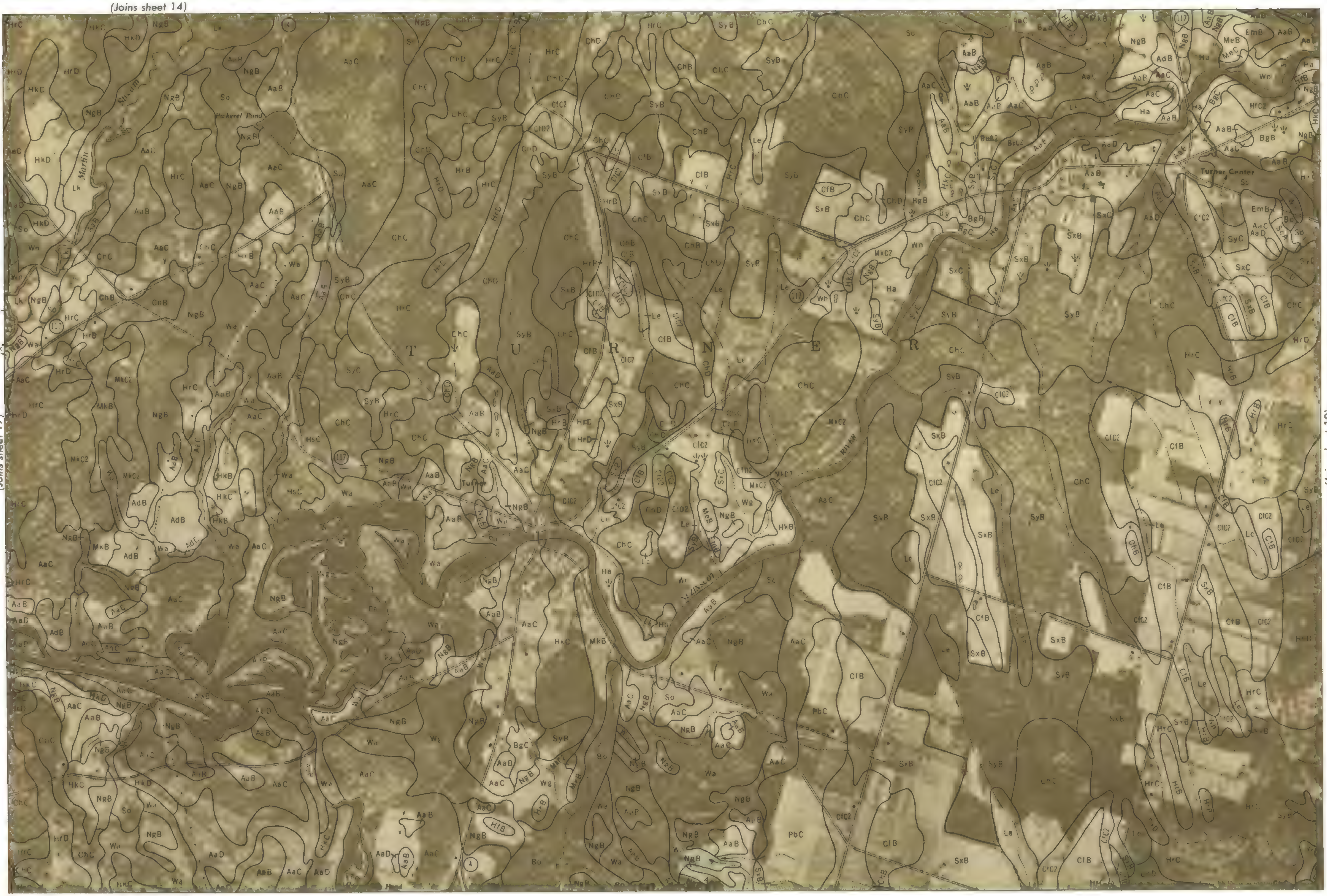
0 5000 Feet

18

(Joins sheet 14)

N

(Joins sheet 17)



(Joins sheet 19)

(Joins sheet 22)

0 ½ 1 Mile Scale 1:15 840 0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 18

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 15)

19

N

(Joins sheet 18)

(Joins sheet 20)

(Joins sheet 23)

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 19

(Joins sheet 16)

(Joins sheet 19)

(Joins sheet 24)

KENNEBEC COUNTY

South Leeds

Curtis Corner

GRAVEL PIT

GRAVEL PIT

MAIN CEMETERY

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

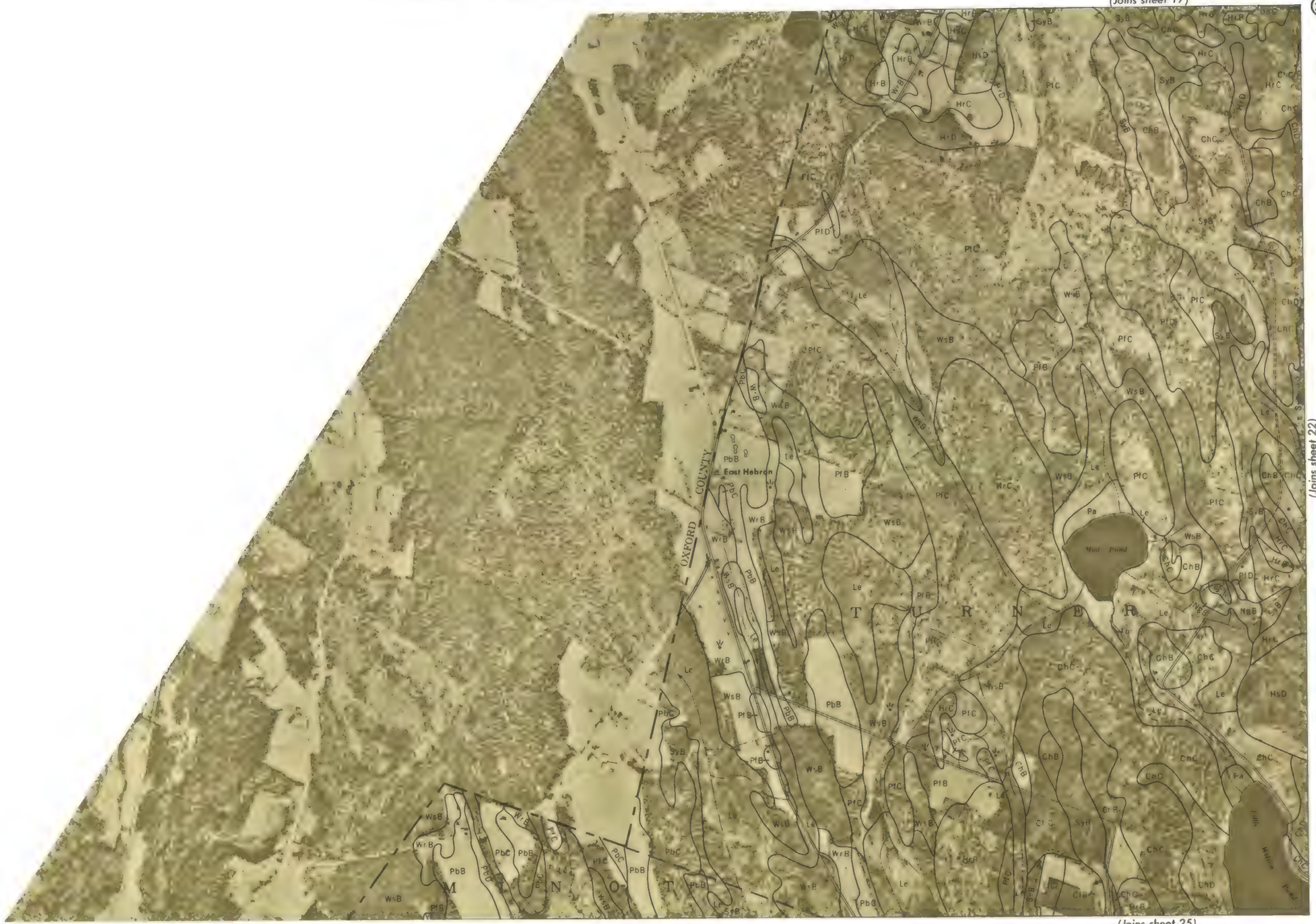
ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 20

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 17)

21

N



(Joins sheet 22)

(Joins sheet 25)

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 21

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE — SHEET NUMBER 22

22

N

(Joins sheet 18)

(Joins sheet 21)

(Joins sheet 23)

(Joins sheet 26)

T. 15 N.

R. 5 E.

R. 6

Black Pond

Frog Pond

Mud Pond

Sandy Bottom Pond

Brook

Meadow

Little Wilson Pond

South Turner

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 22

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 19)

(Joins sheet 22)

(Joins sheet 24)

(Joins sheet 27)

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE — SHEET NO. 23

Scale 1:15 840

0 ½ 1 Mile

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE — SHEET NUMBER 24

(Joins sheet 20)

N

(Joins sheet 23)

(Joins sheet 28)

0 ½ 1 Mile Scale 1:15 840 0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 24

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 21)

(Joins inset, sheet 30)

(Joins sheet 26)

(Joins sheet 31)

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

N

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 25

(26)

N

(Joins sheet 22)

(Joins sheet 25)

(Joins sheet 27)

(Joins sheet 32)

TURNER

TWITCHELL AIRPORT

Skillings Corner

North Auburn

Auburn Plains

Round Pond

Lord Pond

Gull Island Pond

LAKE AUBURN

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 26

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

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ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 27

(28)

(Joins sheet 24)

(Joins sheet 27)

(Joins sheet 29)

(Joins sheet 34)

N

CENTRAL MAINE

KENNEBEC COUNTY

GREENE

WALES

Sprague Mill

Brook

Wales Corner

Union Church

SABATTUS POND

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 28

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

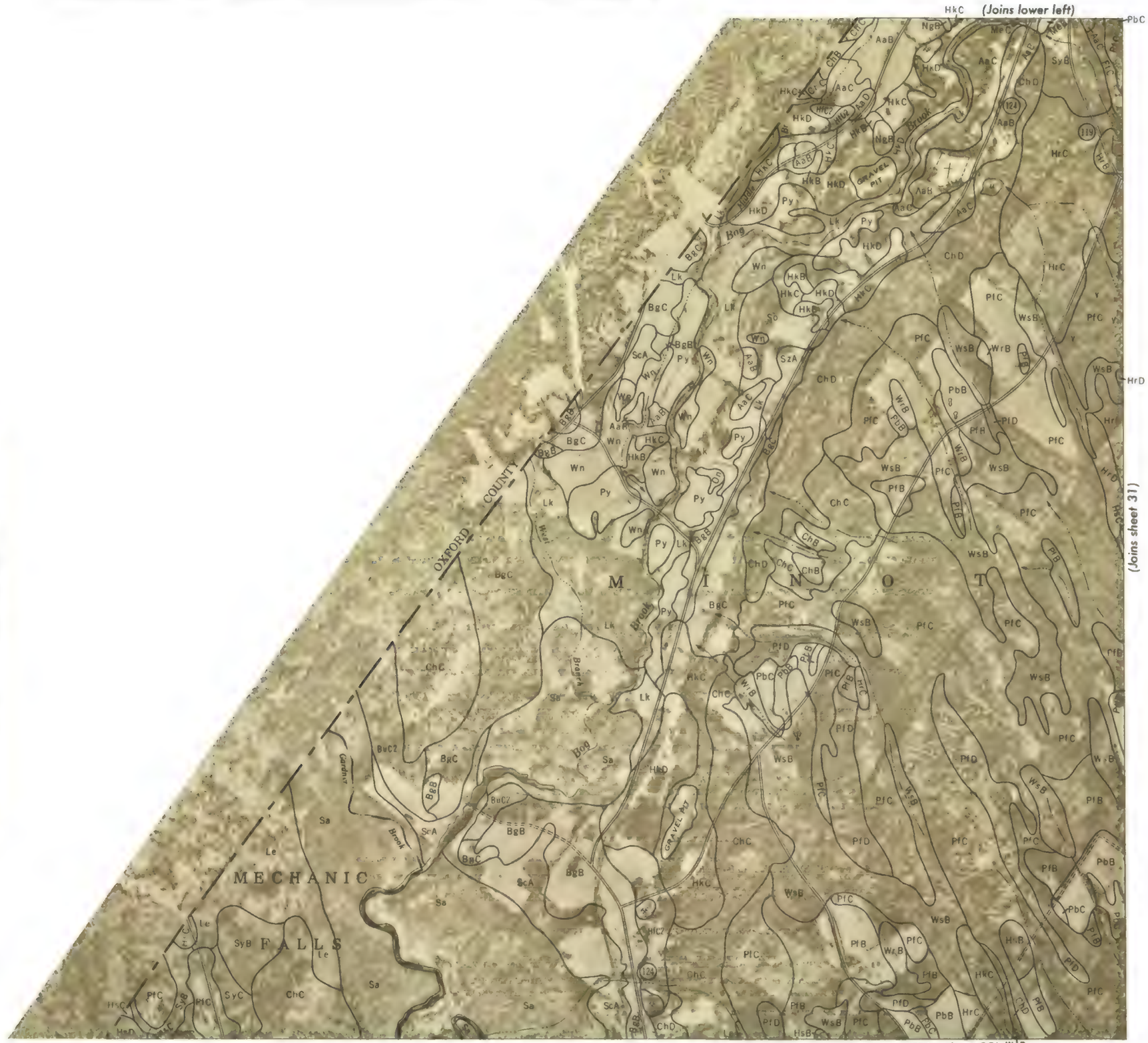
N

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 29

30

N



0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 31

(Joins sheet 25)

(Joins sheet 30)

(Joins sheet 32)

(Joins sheet 39)

M I N O T

A U B U R N

Center Minot

Scale 1:15 840

0 ½ 1 Mile

0 5000 Feet

N

(32)

N

(Joins sheet 26)

(Joins sheet 31)

(Joins sheet 33)

(Joins sheet 40)

LAKE AUBURN

West Auburn

Pine Point

Gulf Island Pond

GULF ISLAND DAM

Taylor Brook

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 32

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

0 ½ 1 Mile
Scale 1:15 840
0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 33

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(34)

N

(Joins sheet 28)

(Joins sheet 33)

(Joins sheet 35)

(Joins sheet 42)

GREENE

LEWISTON

WALES

WEBSTER

POND

SABATTUS

Nason Beach

Marr Point

Custer Point

(9) (126)

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 34

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 29)

(Joins sheet 34)

(Joins sheet 43)

N

KENNEBEC COUNTY

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

N

KENNEBEC COUNTY

RICHMOND

(Joins sheet 37)

(Joins sheet 45)

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 36

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 37

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture and the University of Maine Agricultural Experiment Station

(38)

N

(Joins sheet 30)

(Joins sheet 39)

(Joins inset, sheet 47)

(Joins sheet 48)

OXFORD COUNTY

M I N O T

M E C H A N I C F A L L S

MAPLE GROVE CEMETERY

MECHANIC FALLS

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 38

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

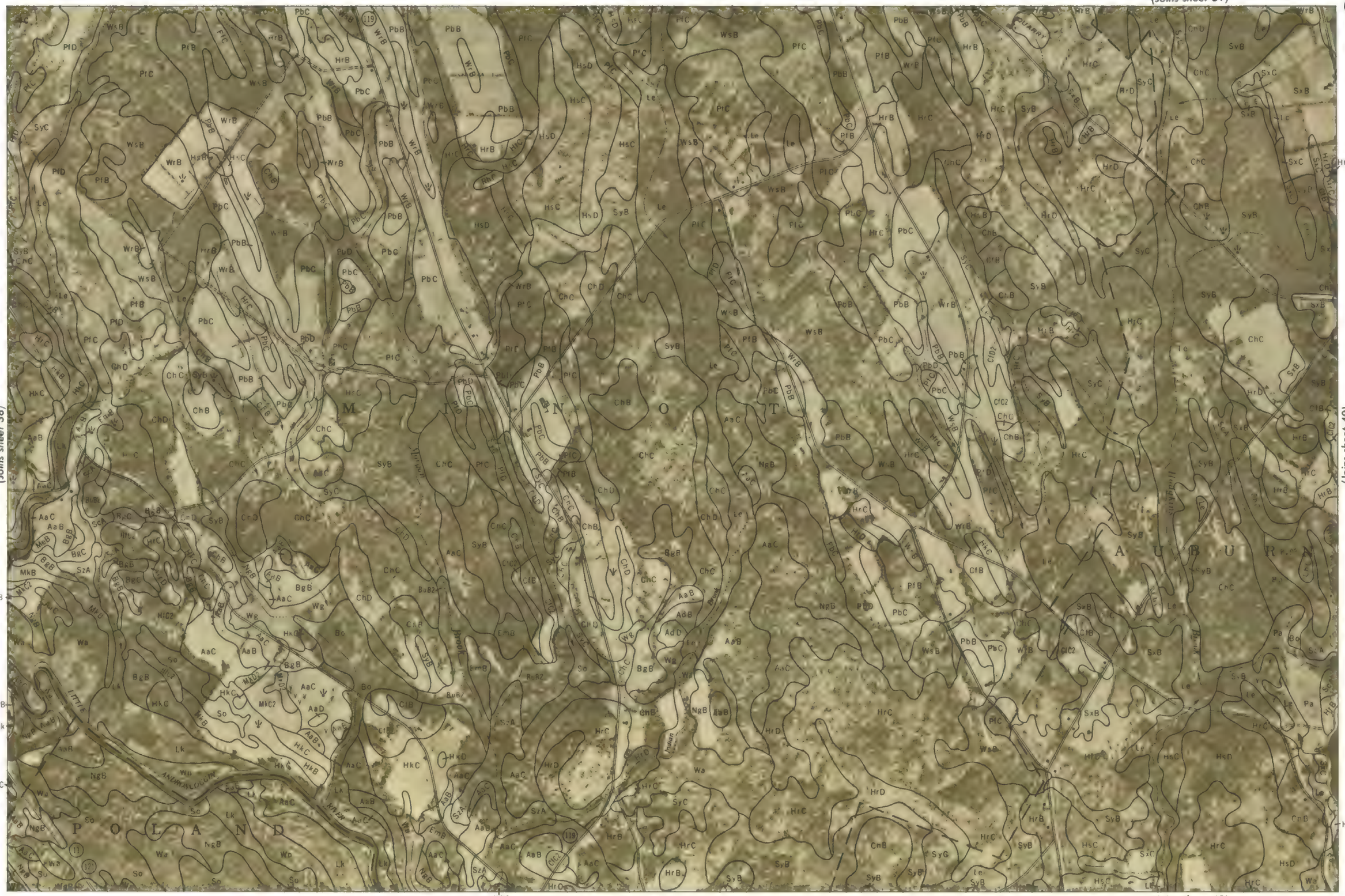
0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

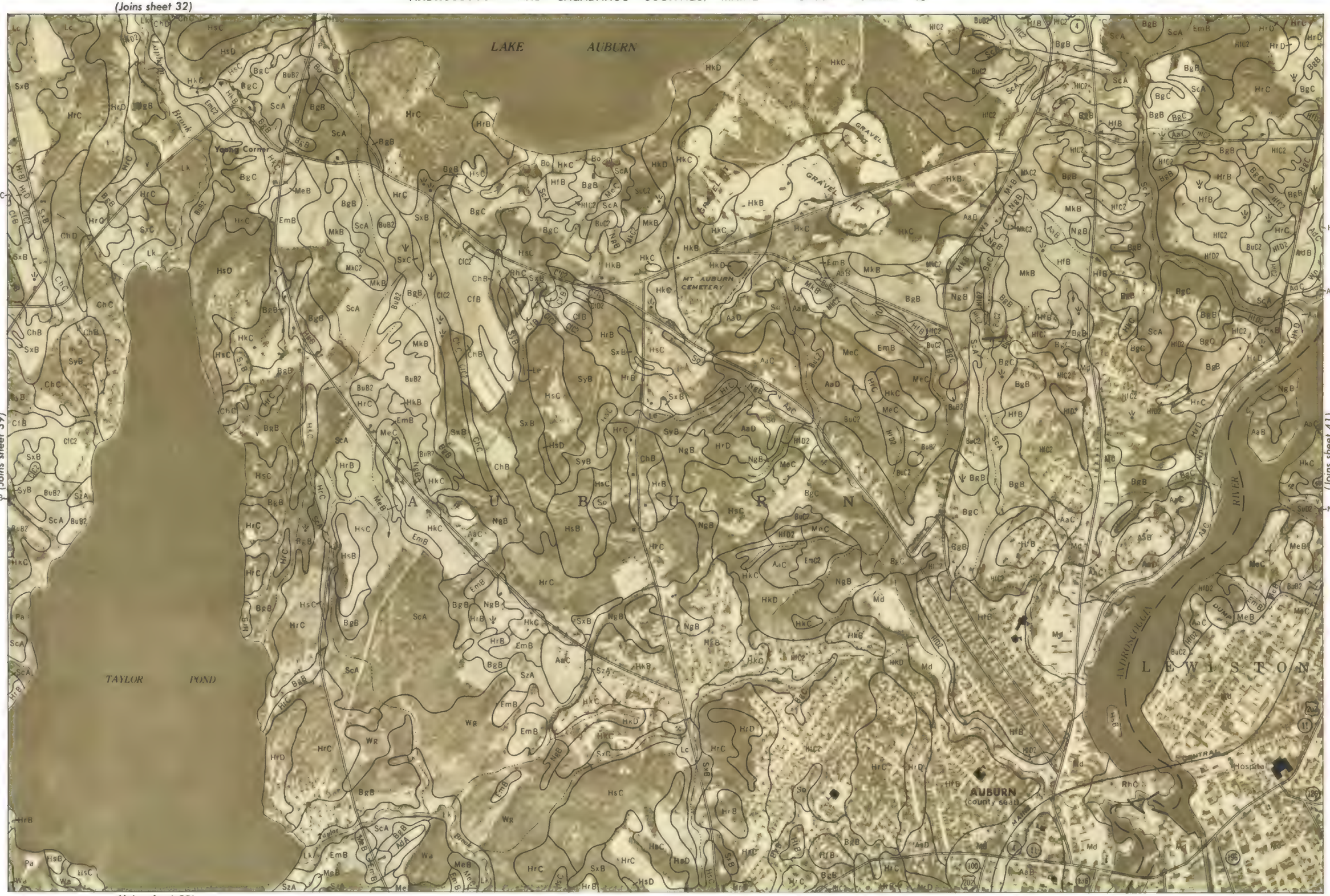
This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 39



ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE — SHEET NUMBER 40

(Joins sheet 32)



0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 40

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

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ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 41

(Joins sheet 40)

(Joins sheet 33)

(Joins sheet 42)

(Joins sheet 51)

41

N

AUBURN

LEWISTON

Bates College

St. Mary's Hospital

Garcelon Bog

Androscoggin River

Androscoggin Pond

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

(42)

(Joins sheet 34)

N

SABATTUS POND

GREENE

LEWISTON

WEST

Sabattus

Round Pond

Drinkwater Corner

GRAVEL PIT

TURNPIKE

MAINE

(Joins sheet 41)

(Joins sheet 43)

(Joins sheet 52)

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 42

This map is one of a set compiled in 1957 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 35)

(Joins sheet 42)

(Joins sheet 44)

(Joins sheet 53)

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

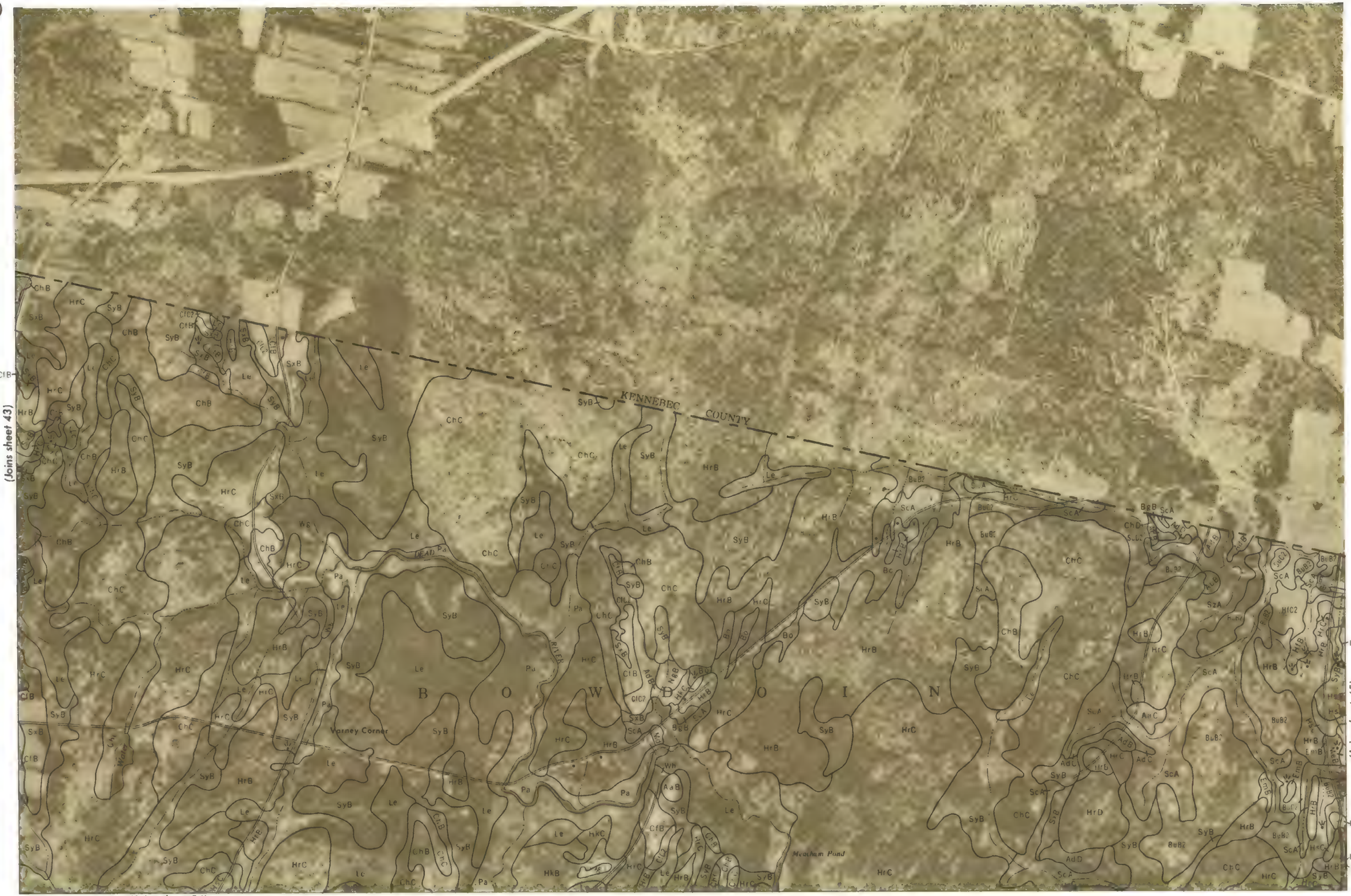
ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 43

Scale 1:15 840

0 ½ 1 Mile

0 5000 Feet

N

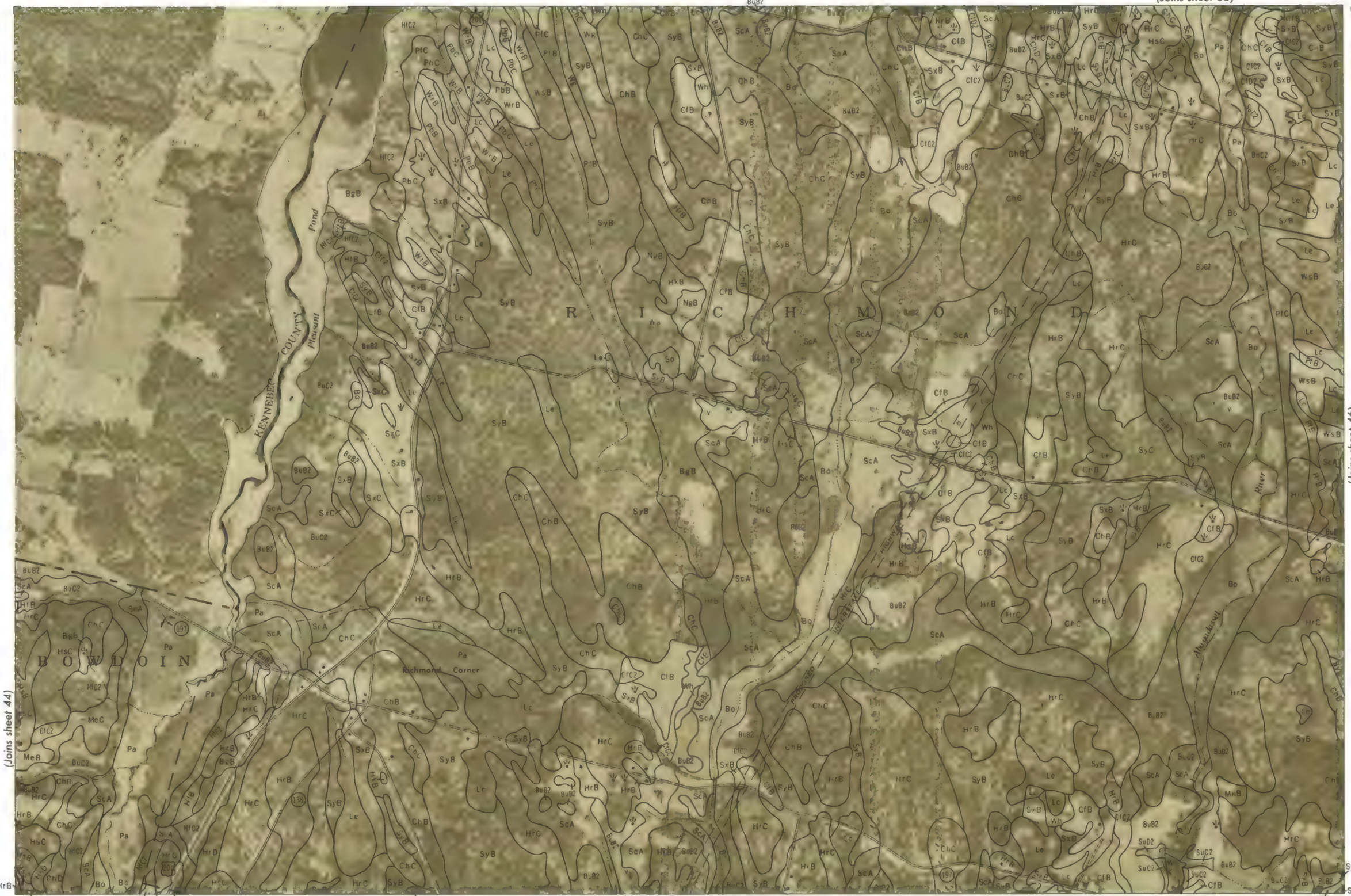


ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 44

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 36)

45



This map is one of a set compiled in 1957 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 45

(46)

(Joins sheet 37)

N

(Joins sheet 45)

(Joins sheet 56)

Water

RICHMOND CAMP GROUND

EVERGREEN CEMETERY

BORROW PIT

CENTRAL MAINE POWER

RICHMOND

CHELSEA

KENNEBEC RIVER

LINCOLN COUNTY

0 ½ 1 Mile

Scale 1:15 840

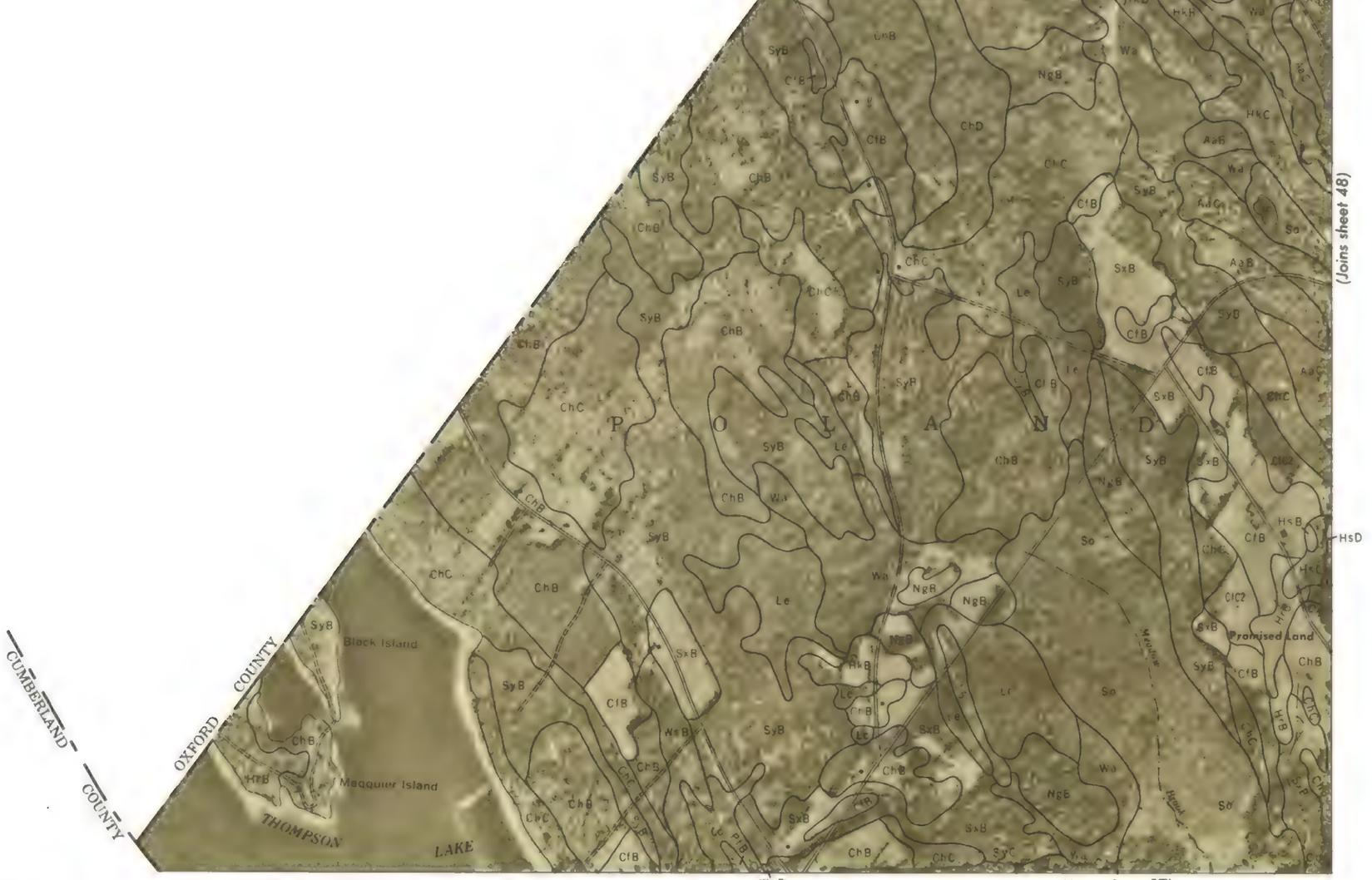
0 5000 Feet

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 46

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 47



(48)

(Joins sheet 38)

(Joins sheet 58)

Scale 1:15 840

0 ½ 1 Mile

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 48

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 39)

N

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 48)

(Joins sheet 50)

(Joins sheet 59)

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

(50)

(Joins sheet 40)

N

(Joins sheet 49)

(Joins sheet 51)

(Joins sheet 60)

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 50

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 51

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(52)

N

(Joins sheet 42)

(Joins sheet 51)

(Joins sheet 53)

(Joins sheet 62)

LEWISTON

WEBSTER

LISBON

Robinson Corner

Webster Corner

Sutherland Pond

MAINE

SHUTTLE

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 52

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 43)

N

(Joins sheet 52)

(Joins sheet 54)

(Joins sheet 63)

Scale 1:15 840

0 ½ 1 Mile

0 5000 Feet

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 53

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE — SHEET NUMBER 54

54

N

(Joins sheet 44)

(Joins sheet 53)

(Joins sheet 55)

(Joins sheet 64)

Starbird Corner

BOWDOIN

Androscoggin River

Cathance Stream

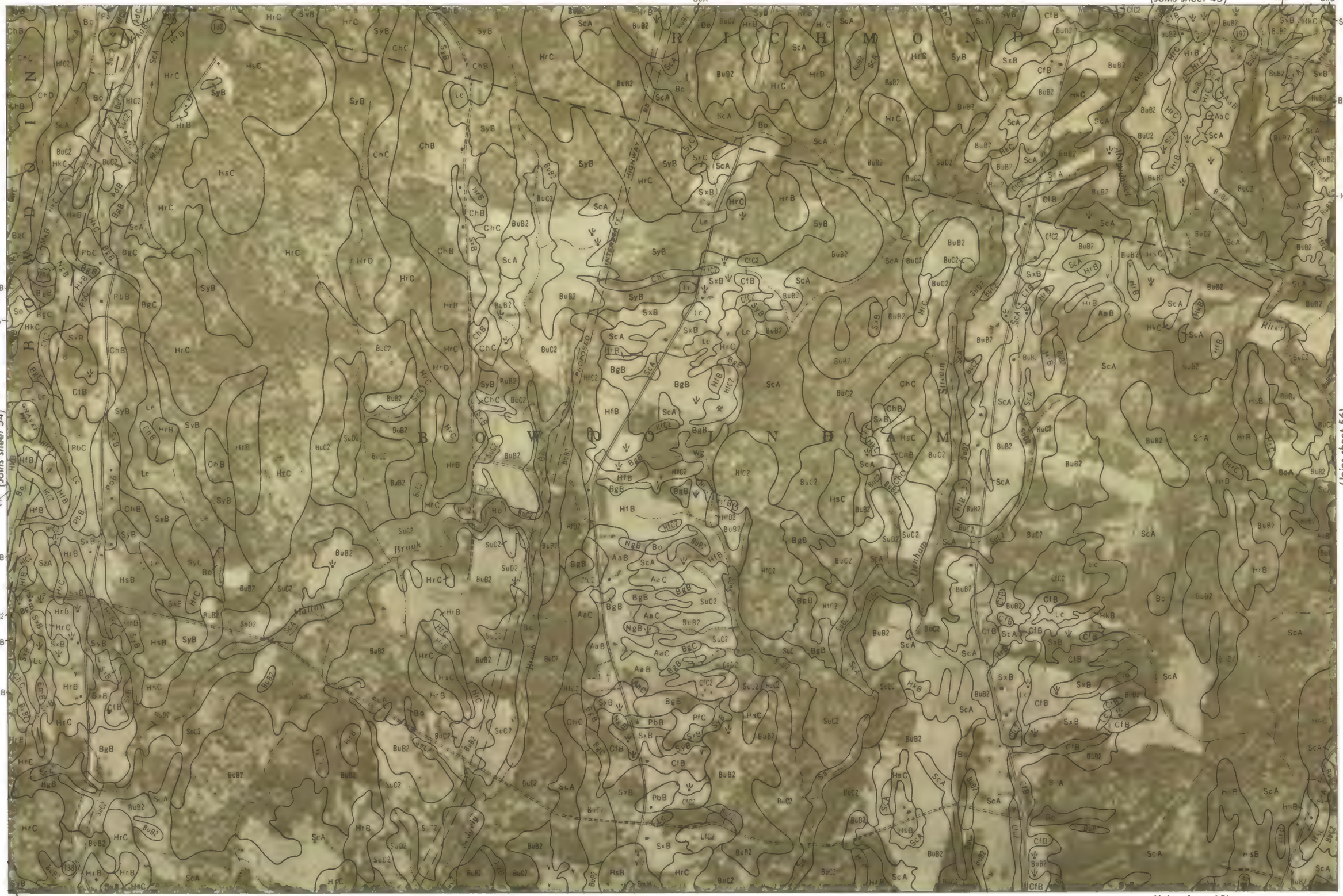
0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 54

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station



(Joins sheet 46)

(Joins sheet 55)

(Joins sheet 66)

N

RICHMOND

BOWDOINHAM

ISLAND

SWAN

RIVER

CENTRAL

MAINE

GRAVEL PIT

LINCOLN COUNTY

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE SHEET NO. 56

(Joins sheet 47)

57

N

(Joins sheet 58)

(Joins sheet 67)

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 57

(58)

(Joins sheet 48)

(Joins sheet 57)

(Joins sheet 59)

(Joins sheet 68)

N

TRIPP POND

Oak Hill

Summit Spring

Poland Spring

PLAND

LOWER RANGE POND

MIDDLE RANGE POND

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 58

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 59

(Joins sheet 58)

(Joins sheet 49)

(Joins sheet 60)

(Joins sheet 69)

59

N

Poland Spring Station

LOWER RANGE POND

Worthley Brook

Worthley Pond

water

Empire

Lewiston Junction

AUBURN-LEWISTON MUNICIPAL AIRPORT

CANADIAN NATIONAL

GRAVEL PIT

BORROW PIT

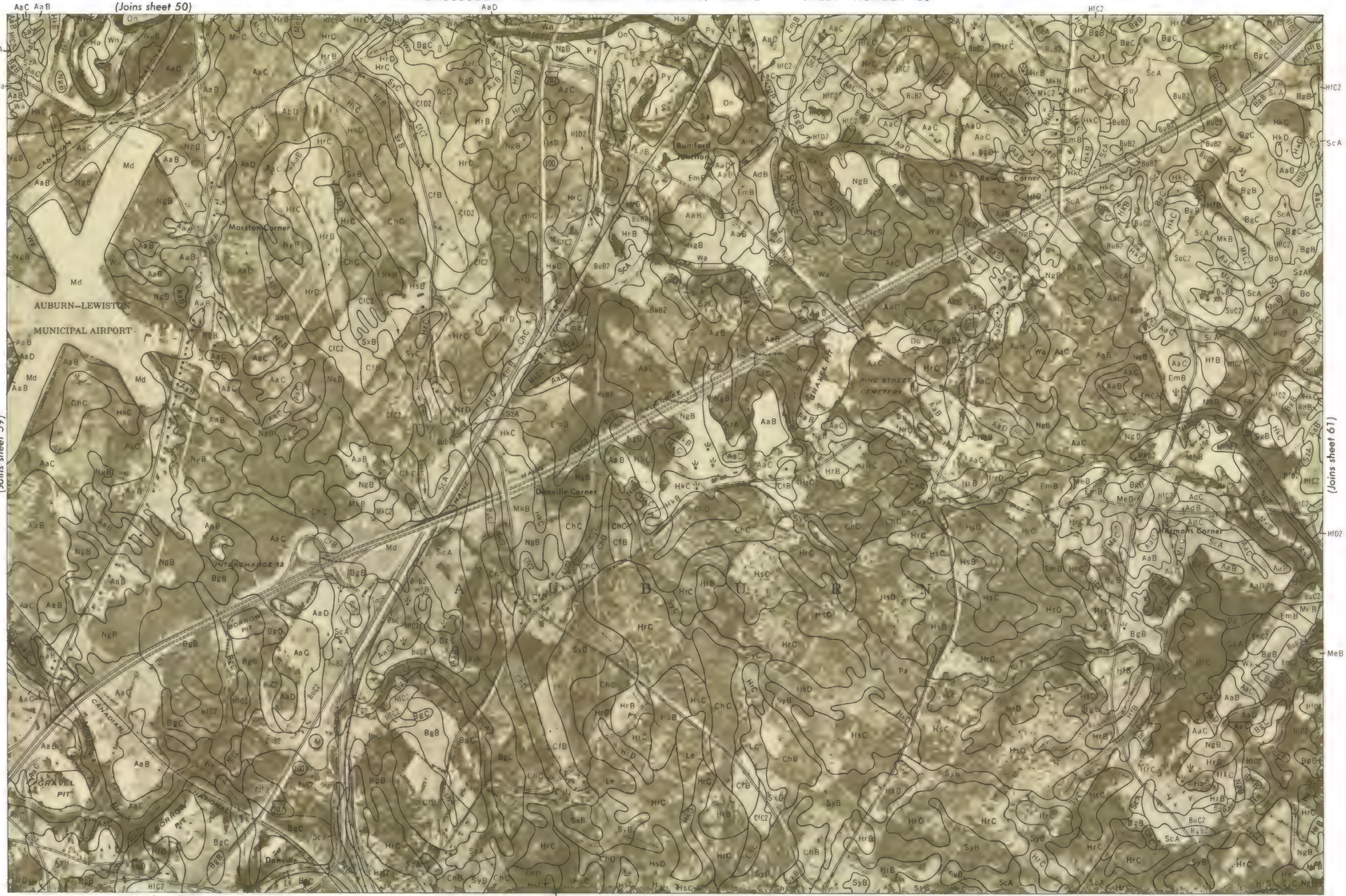
CUMBERLAND COUNTY

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

60



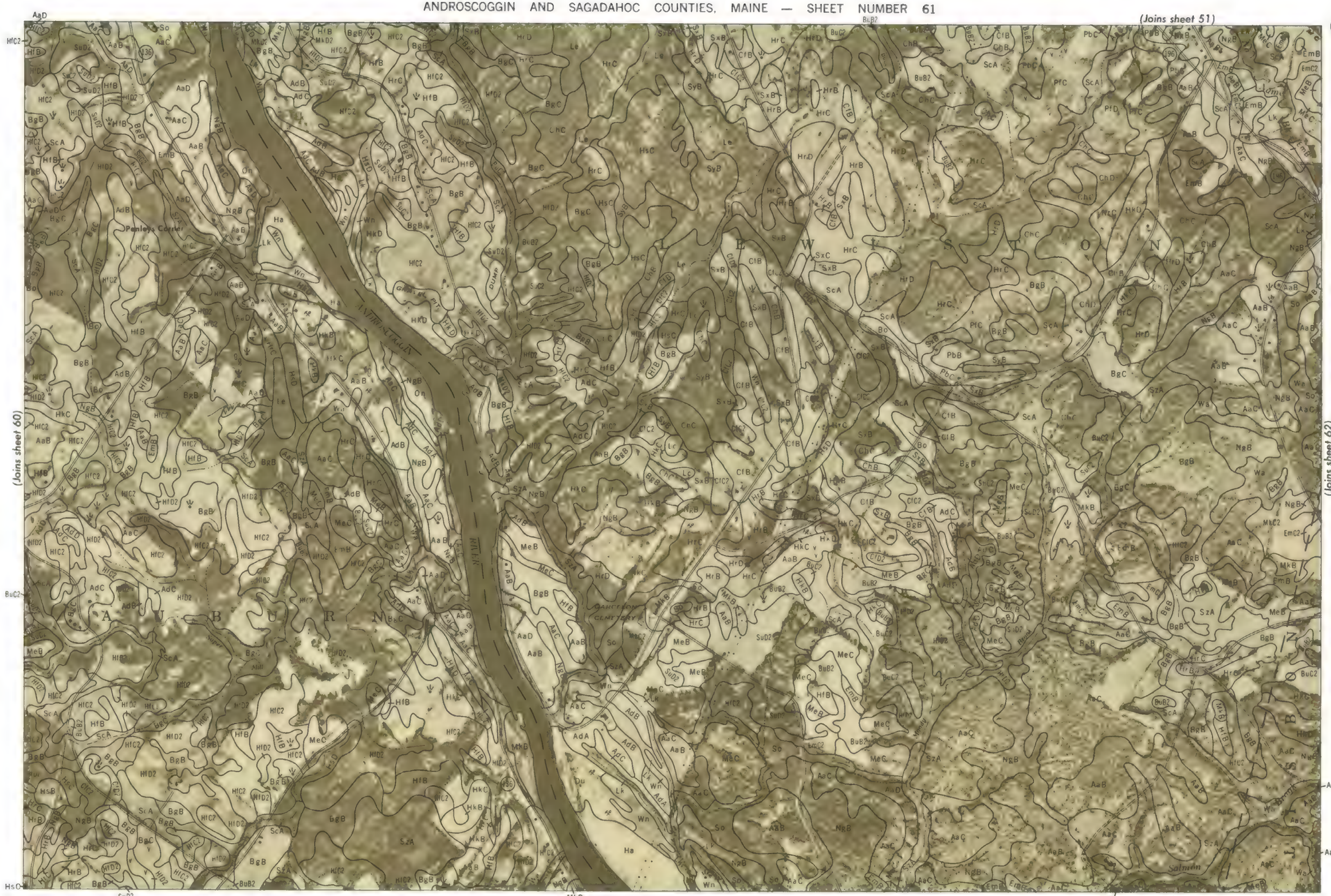
0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 60

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station



ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE — SHEET NUMBER 62

62

(Joins sheet 52)

(Joins sheet 61)

(Joins sheet 63)

(Joins sheet 72)

N

LISBON

Scale 1:15 840

0 ½ 1 Mile

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 62

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 53)

(Joins sheet 62)

(Joins sheet 64)

(Joins sheet 73)

N

West Bowdoin

Higgins Corner

Scale 1:15 840

0 ½ 1 Mile

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE — SHEET NUMBER 64

(64)

N

(Joins sheet 54)

(Joins sheet 63)

(Joins sheet 65)

(Joins sheet 74)

Bowdoin Center

Adams School

Stream

Cathance

Pond

BOWDOIN

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 64

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 55)

65

N

(Joins sheet 64)

(Joins sheet 66)

(Joins sheet 75)

BOWDOIN

Scale 1:15 840

0 ½ 1 Mile

0 5000 Feet

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 65

(66)

(Joins sheet 56)

N

(Joins sheet 65)

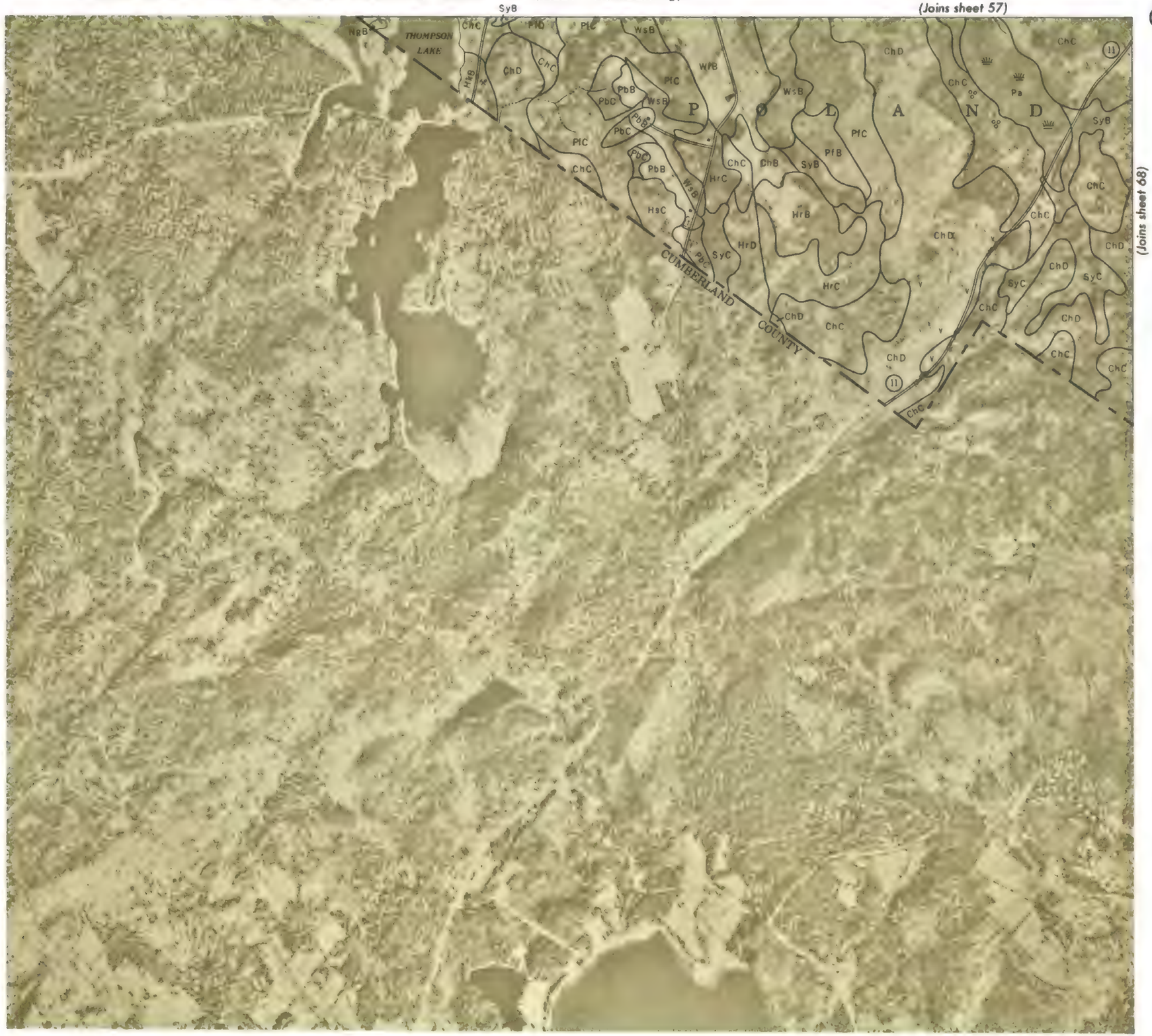
(Joins sheet 76)

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE — SHEET NUMBER 67



0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

(68) (11)

N

(Joins sheet 67)

POLAND

CUMBERLAND COUNTY

CUMBERLAND COUNTY

RANGE POND

MIDDLE RANGE POND

UPPER RANGE POND

Fales Bay

May Brook

Shaker Bog

South Poland

(Joins sheet 69)

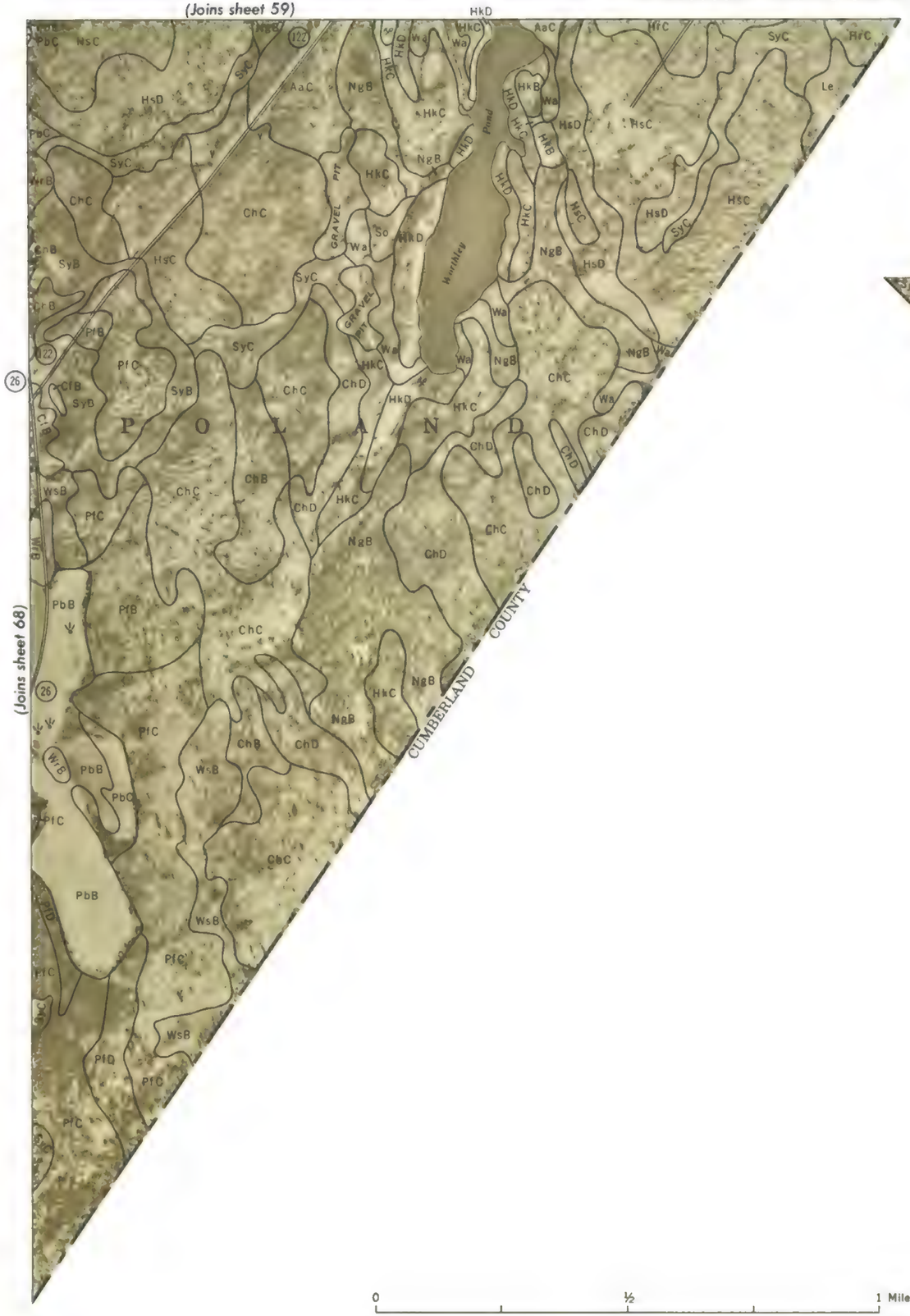
0 ½ 1 Mile

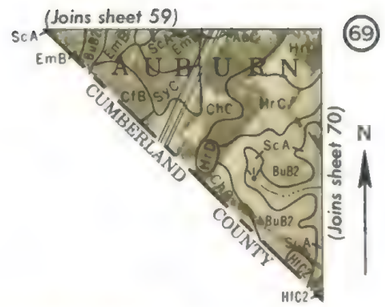
Scale 1:15 840

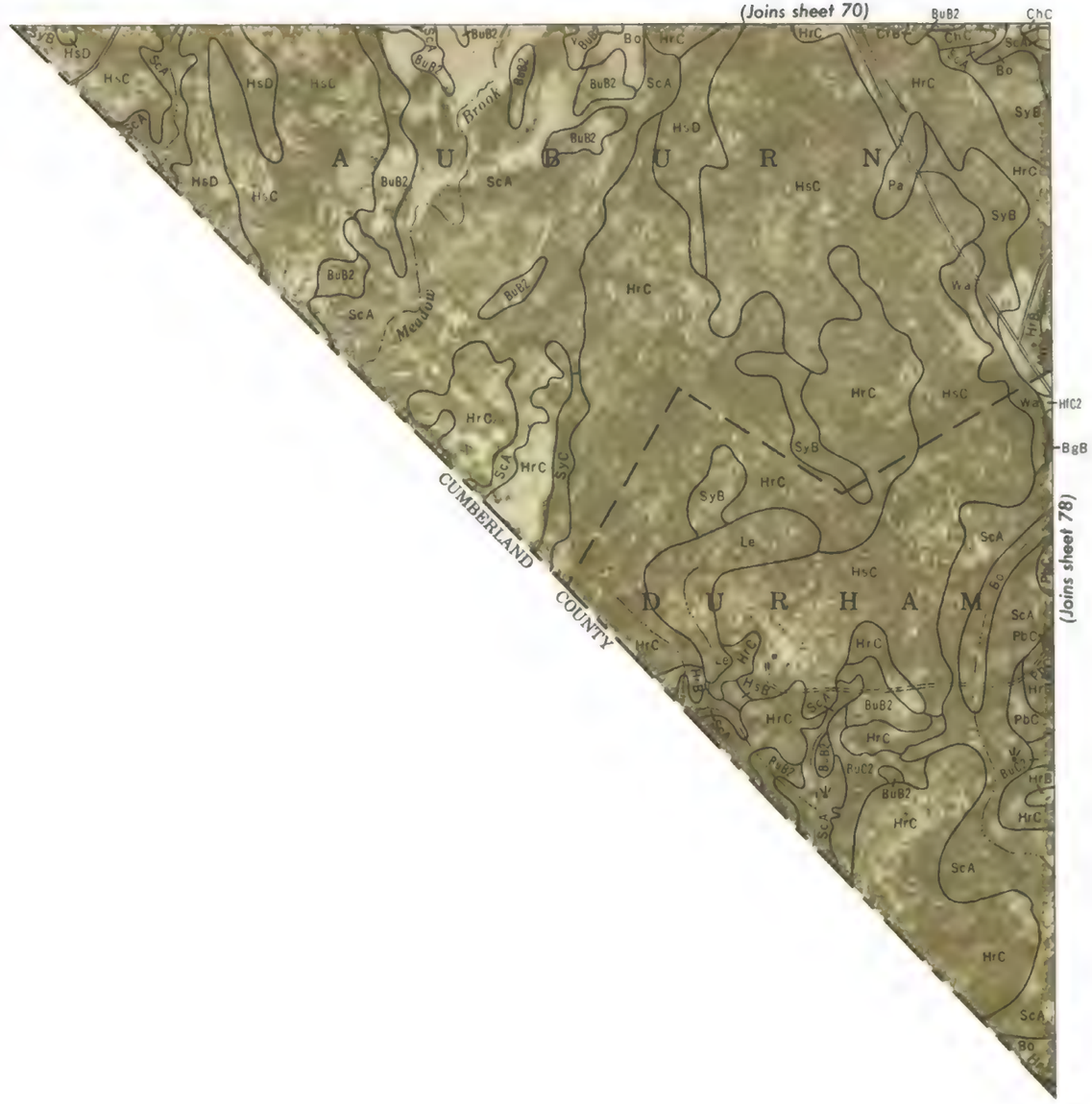
0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 68

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station







0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

(Joins sheet 60)

0 ½ 1 Mile Scale 1:15 840 0 5000 Feet

(Joins inset, sheet 69)

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 70

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 61)

71

(Joins sheet 70)

(Joins sheet 72)

(Joins sheet 78)

N

A U B U R N

L E W I S T O N

L I S B O N

D U R H A M

ANDROSCOGGIN RIVER

Scale 1:15 840

0 ½ 1 Mile

0 5000 Feet

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 71

(72)

(Joins sheet 62)

N

(Joins sheet 71)

(Joins sheet 73)

(Joins sheet 79)

LISBON

ANDROSCOGGIN RIVER

Lisbon Center

Webbs Corner

GRAVEL PIT

CENTRAL MAINE

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 72

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 63)

73

(Joins sheet 72)

(Joins sheet 74)

(Joins sheet 80)

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 73

Scale 1:15 840

0 ½ 1 Mile

0 5000 Feet

(74)

(Joins sheet 64)

N

(Joins sheet 73)

(Joins sheet 75)

(Joins sheet 81)

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 74

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 65)

75

N

(Joins sheet 74)

(Joins sheet 76)

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 75

Bowdoinham

BOWDOINHAM

Bald Head

Beach Point

MERRYMEETING BAY

MAINE

CENTRAL

WEST BRANCH

RIVER

CATHANCE

ABAGADASSET

(Joins sheet 82)

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

(76)

N

(Joins sheet 66)

(Joins sheet 75)

(Joins sheet 77)

(Joins sheet 83)

BAY

MERRYMEETING

BOWDOINHAM

WOOLWICH

LINCOLN COUNTY

Twing Point

Abagadasset Point

Lillys Cove

Chops Creek

Crosstown Crossroad

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 76

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 77

77

N

LINCOLN COUNTY

W O O L W I C H

GRAVEL PIT

Montsweag Brook

LINCOLN COUNTY

(Joins sheet 76)

(Joins sheet 84)

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

(78)

(Joins sheet 71)

(136)

N

(Joins inset, sheet 69)

(Joins sheet 79)

AUBURN

LEWISTON

CUMBERLAND COUNTY

HARMON GROVE CEMETERY

0 ½ 1 Mile

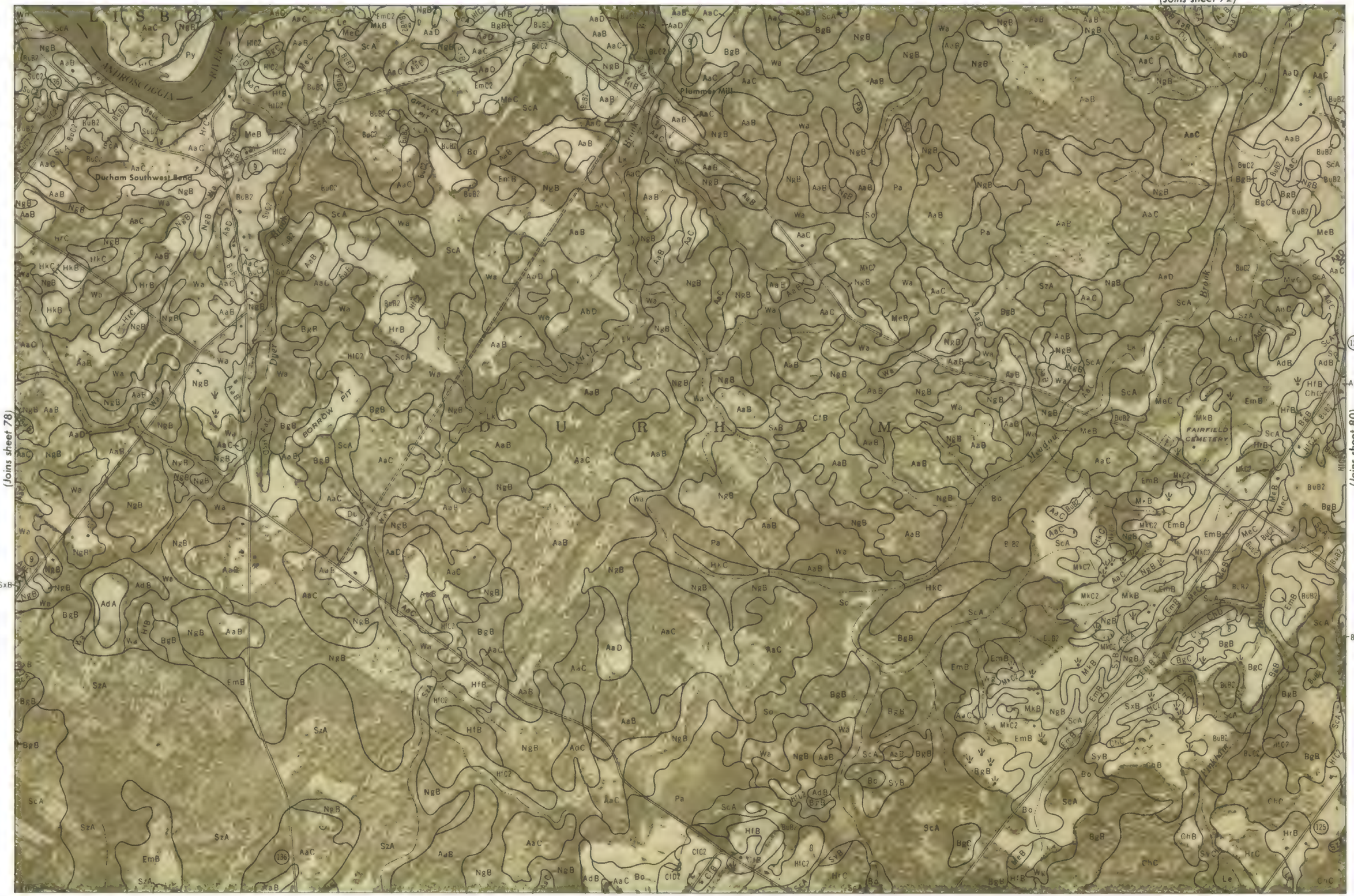
Scale 1:15 840

0 5000 Feet

(Joins sheet 85)

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 78

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service United States Department of Agriculture, and the University of Maine Agricultural Experiment Station



0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

(Joins sheet 73)

(Joins sheet 79)

(Joins sheet 81)

(Joins sheet 87)

N

Crossman Corner

GRAVEL PIT

SAGADAHOC AND ANDROSCOGGIN COUNTY

CENTRAL MAINE POWER CO. TRANSMISSION LINE

GRAVEL PIT

ANDROSCOGGIN COUNTY

KENNEBEC RIVER

CUMBERLAND COUNTY

DUMP

St Andrews Church

TOPSHAM

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 80

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 80)

(Joins sheet 74)

(Joins sheet 82)

(Joins sheet 88)

N

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

82

(Joins sheet 75)

N

(Joins sheet 81)

(Joins sheet 83)

(Joins sheet 89)

0 ½ 1 Mile

Scale 1:15 840

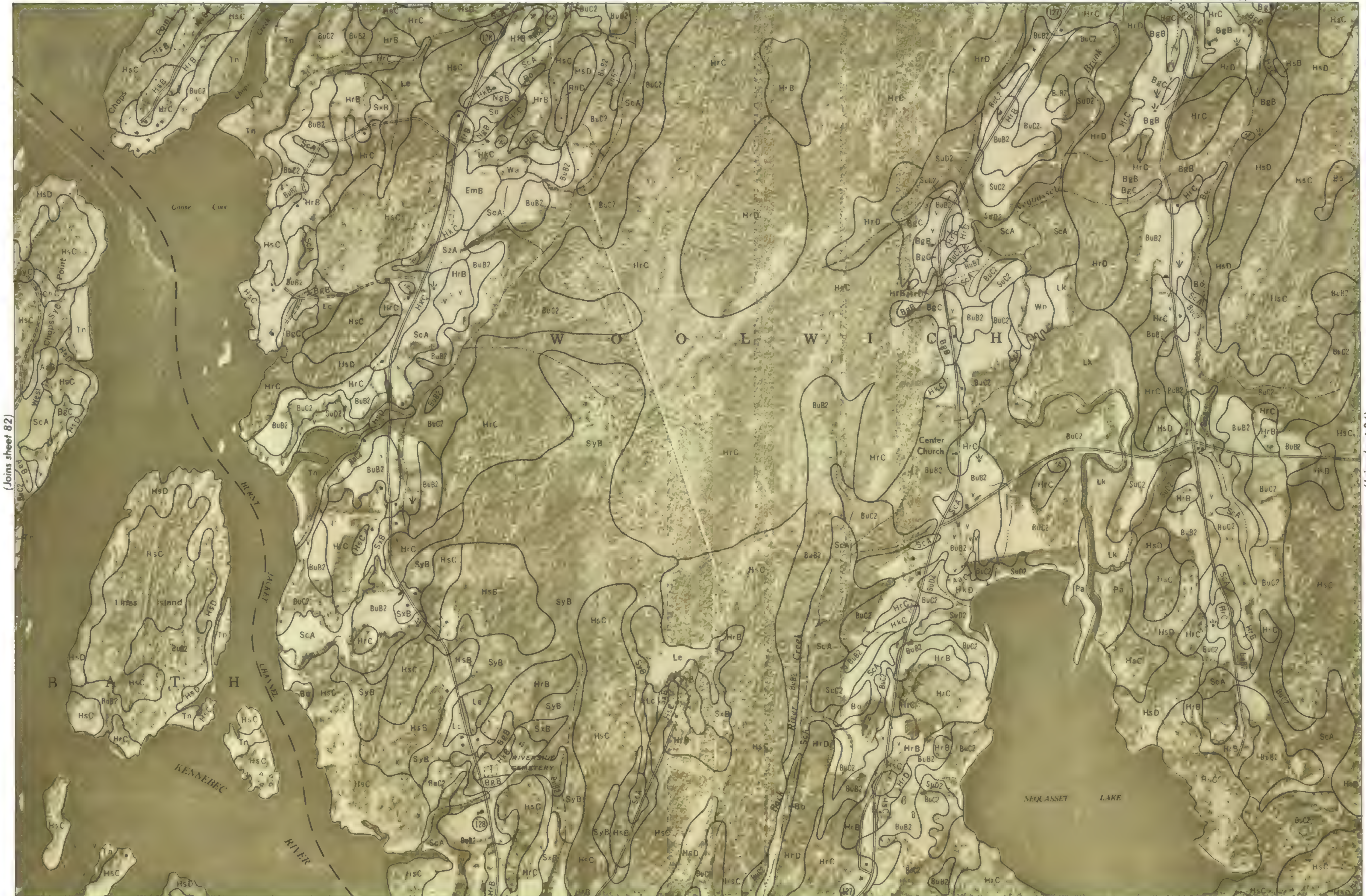
0 5000 Feet

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(83)

(Joins sheet 76)

(Joins sheet 82)



(Joins sheet 84)

(Joins sheet 90)

0 ½ 1 Mile   Scale 1:15 840   0 5000 Feet

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 83

(84)

N

(Joins sheet 77)

(Joins sheet 83)

(Joins sheet 91)

0 ½ 1 Mile

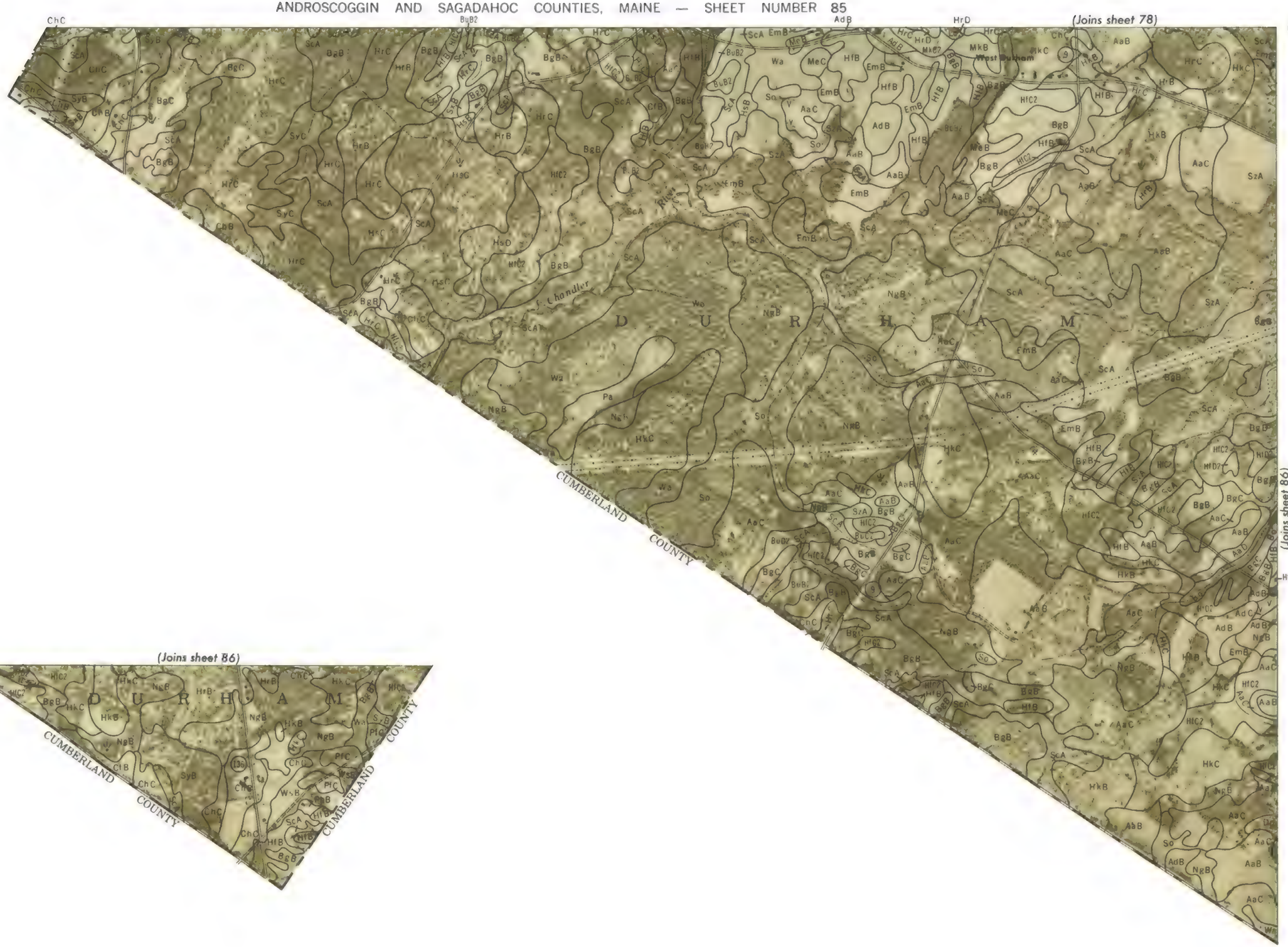
Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 84

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE — SHEET NUMBER 85



0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

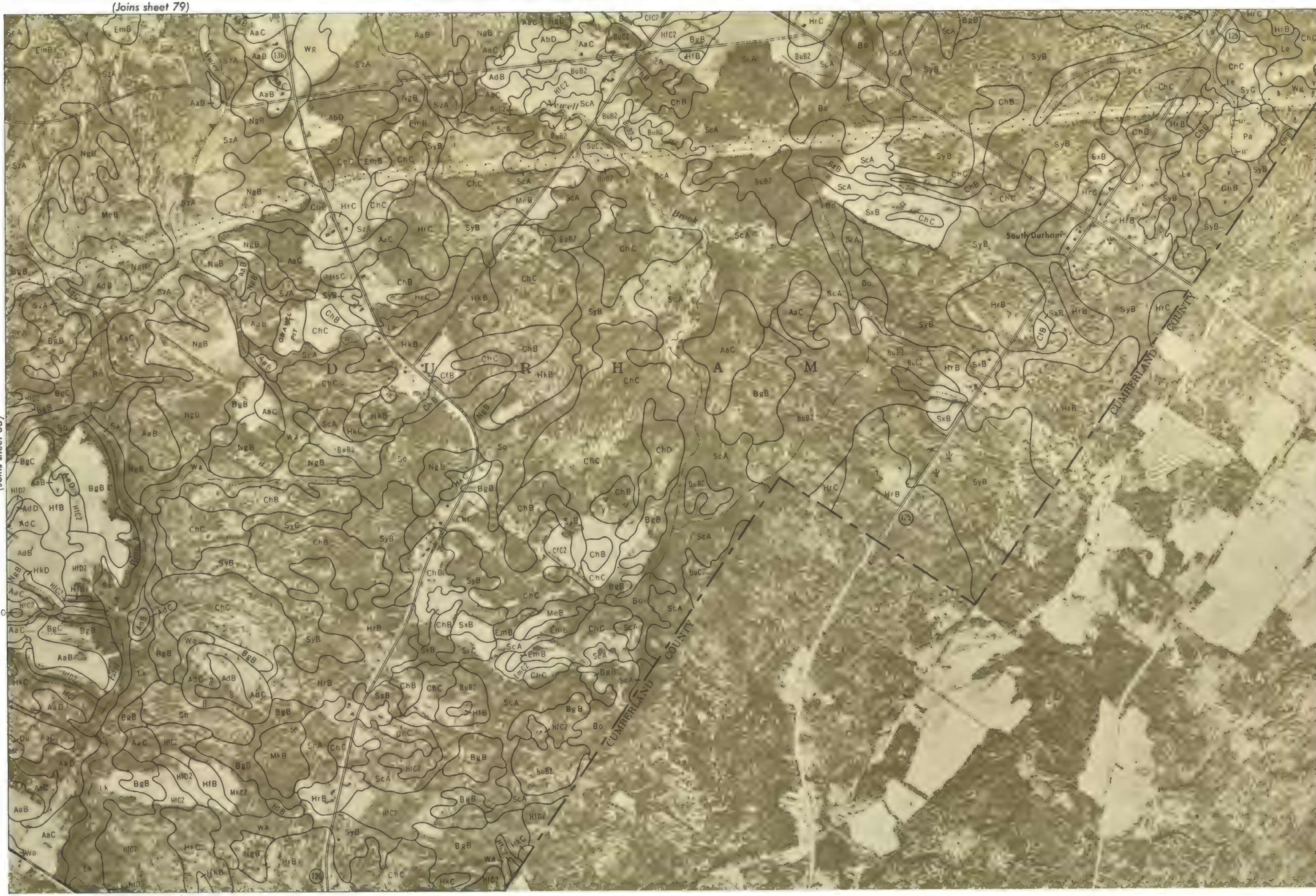
ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 85

86

(Joins sheet 79)

(Joins sheet 85)

(Joins sheet 87)



(Joins inset, sheet 85)

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 86

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 86)

(Joins sheet 80)

(Joins sheet 88)

87

N

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 87

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

88

N

(Joins sheet 81)

(Joins sheet 87)

(Joins sheet 89)

AaD

TOPSHAM

Cone School

Fairground

TOPSHAM CEMETERY

GRAVEL PIT

QUARRY

BORROW PIT

PROPOSED INTERSTATE

HIGHWAY

CENTRAL MAINE

MAINE CENTRAL

ANDROSCOGGIN RIVER

CUMBERLAND COUNTY

Cow Island

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

(Joins inset, sheet 89)

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 88

This map is one of a set compiled in 1957 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 82)

(Joins sheet 88)

(Joins sheet 90)

(Joins sheet 92)

0 ½ 1 Mile Scale 1:15 840 0 5000 Feet

(90)

N

(Joins sheet 83)

(Joins sheet 89)

(Joins sheet 91)

(Joins sheet 93)

Thorne Island

Days Ferry

WHISKEAG CREEK

CITY DUMP

CALVARY CEMETERY

Mercy Memorial Hospital

Dyke School

MAPLE GROVE CEMETERY

Bath School

BATH
County Seat

KENNEBEC RIVER

MAINE CENTRAL R.R.

Pleasant Cove

Woolwich

HANSON BAY

NEQUASSET LAKE

MAINE CENTRAL R.R.

WOOLWICH

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 40

(Joins sheet 84)

(Joins sheet 90)

(Joins sheet 94)

W O O L W I C H

MONTSWEAG

LINCOLN COUNTY

BAY

BROOKINGS BAY

Murphy Corner

Pine Island

Oak Island

N

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE — SHEET NUMBER 92

92

N

(Joins sheet 89)

(Joins sheet 93)

(Joins sheet 95)

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 92

(Joins sheet 90)

(Joins sheet 92)

(Joins sheet 94)

(Joins sheet 96)

93

N

BATH (County seat)

Woolwich

HANSON BAY

KENNEBEC RIVER

SANANIA RIVER

Arrowsic School

Palace Cove

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

(94)

N

(Joins sheet 91)

(Joins sheet 93)

(Joins sheet 97)

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

This map is one of a set compiled in 1987 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 94

(Joins sheet 92)

(Joins sheet 96)

(Joins sheet 98)

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 95

(96)

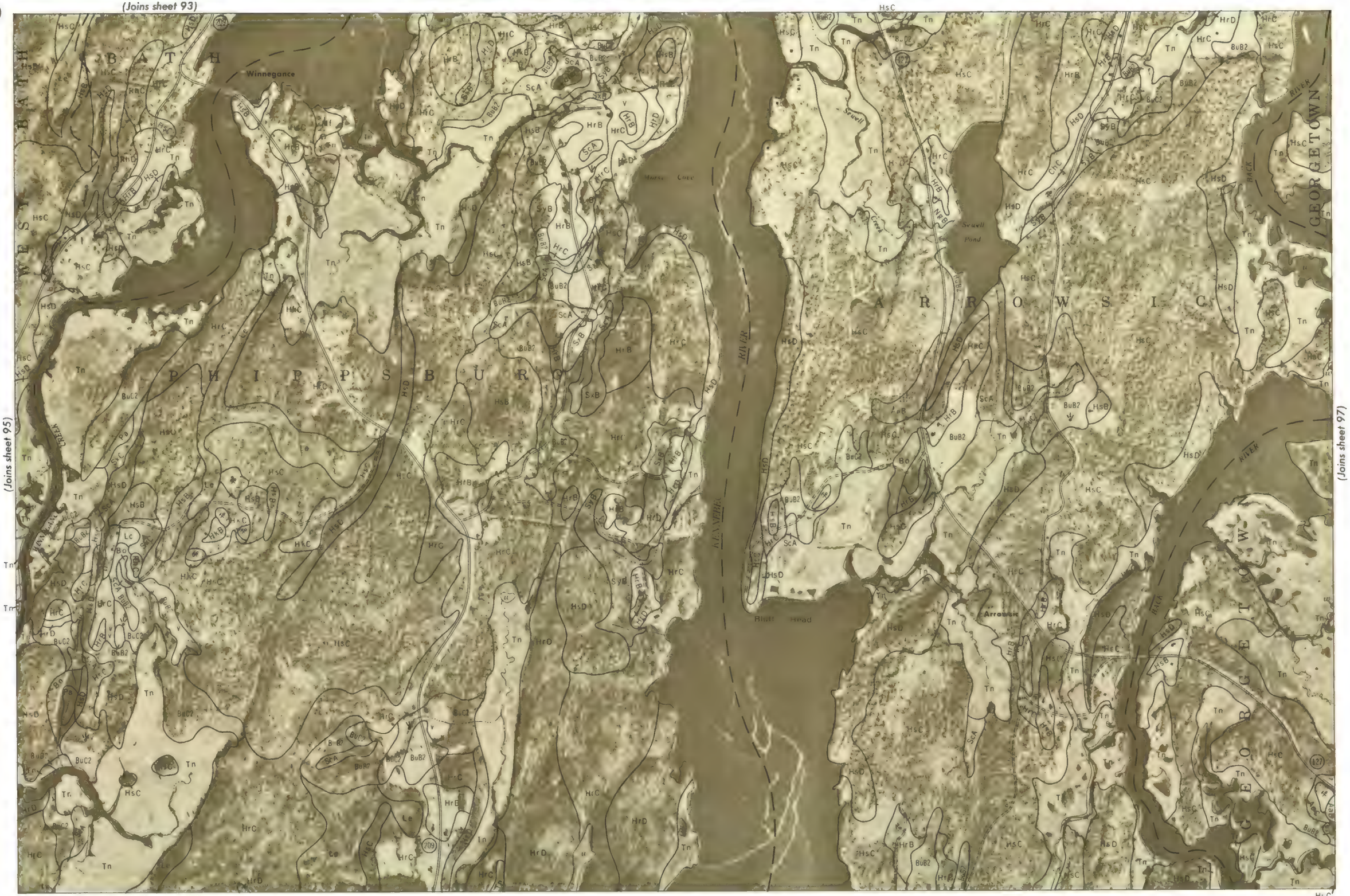
N

(Joins sheet 93)

(Joins sheet 95)

(Joins sheet 97)

(Joins sheet 99)



0 ½ 1 Mile

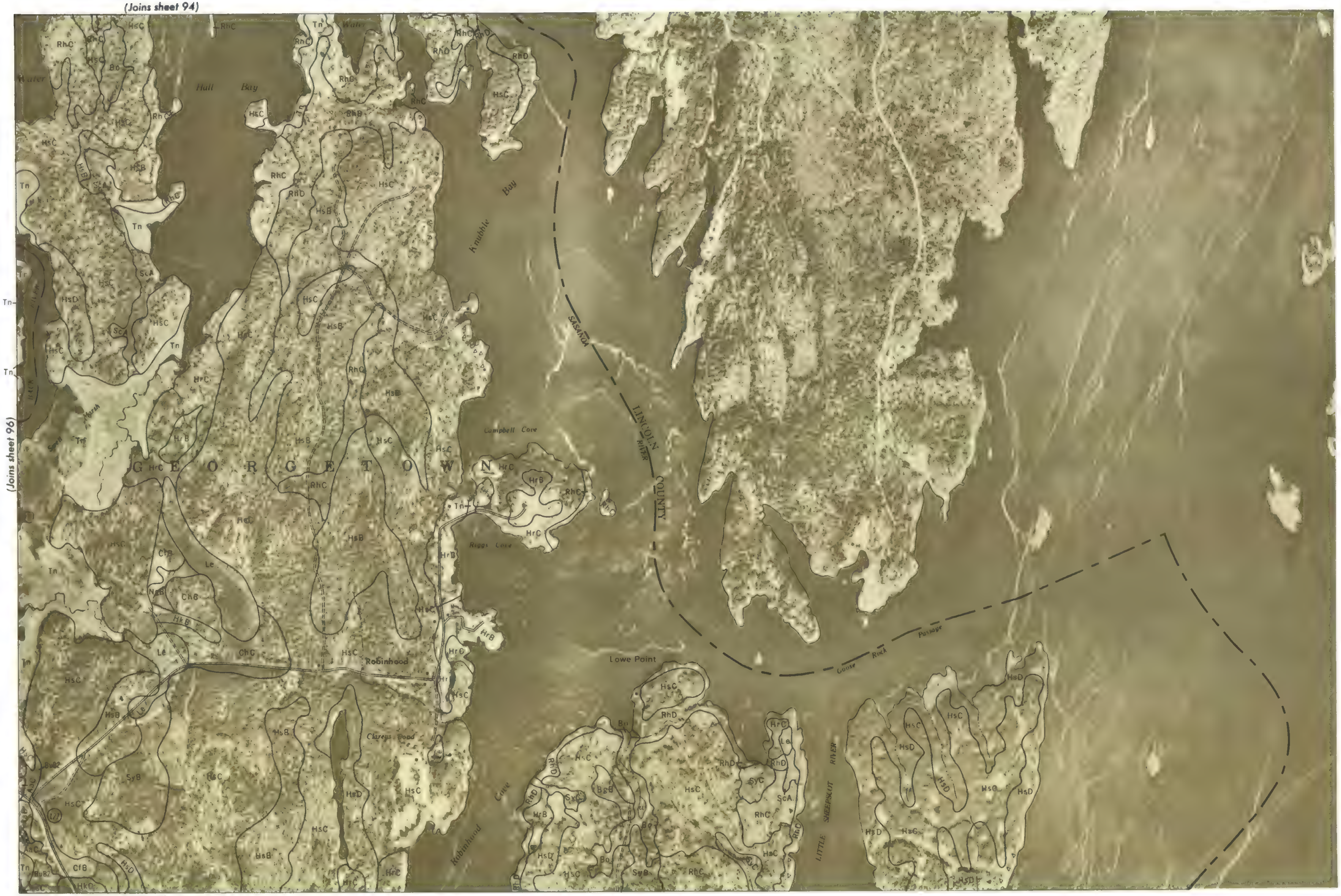
Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 96

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 94)



(Joins sheet 96)

(Joins sheet 100)

0 ½ 1 Mile Scale 1:15 840 0 5000 Feet

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(98)

N

(Joins sheet 95)

W E S T B A T H

P H I P P S B U R G

Houghton Pond

Birchwood Pond

Merry Cove

Winnegance Bay

Meadowbrook

Birch Point

Bushy Island

Hen Island

WEST BATH — CUMBERLAND COUNTY

(Joins sheet 99)

(Joins sheet 101)

0 ½ 1 Mile

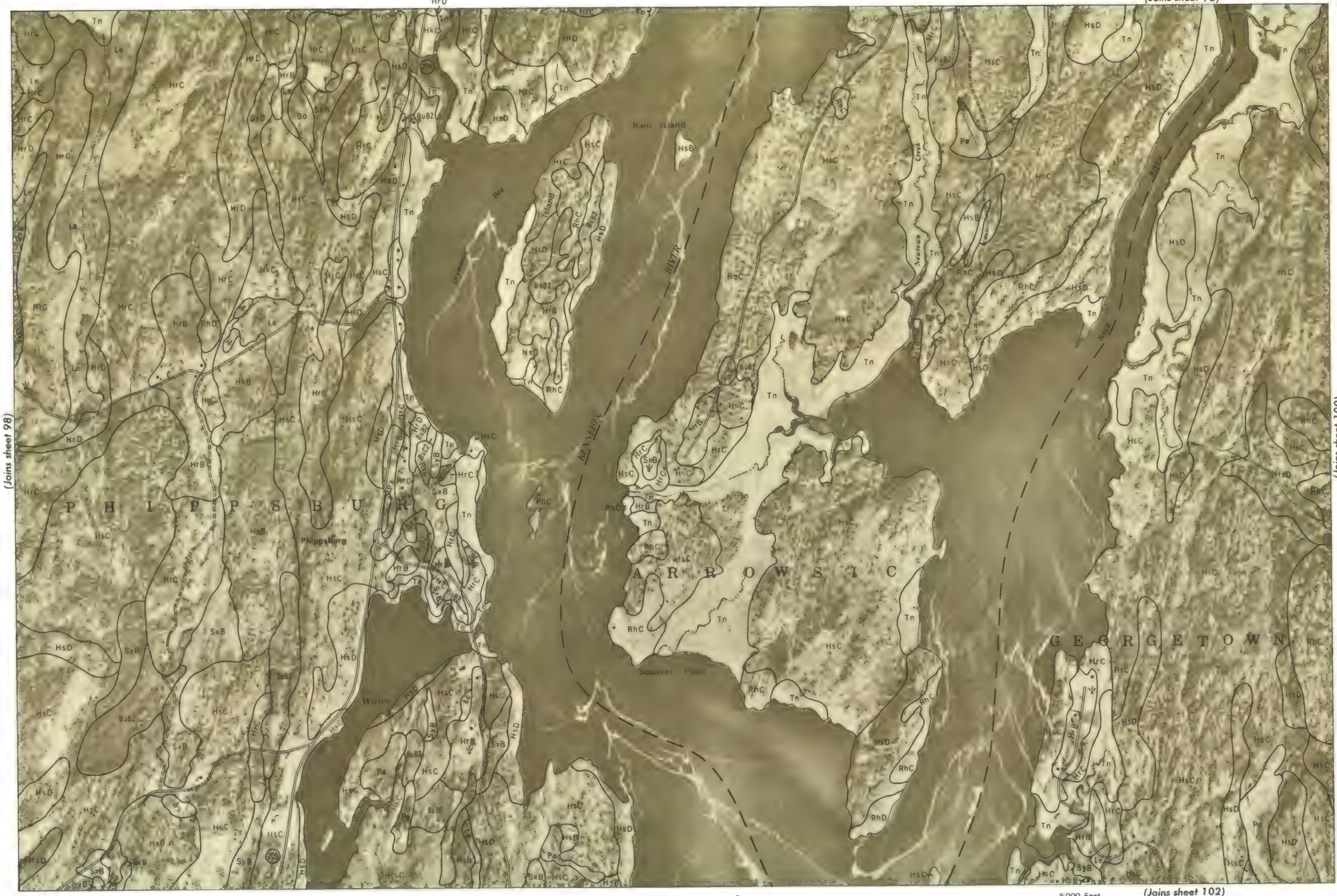
Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 98

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 96)



(Joins sheet 98)

(Joins sheet 100)

(Joins sheet 102)

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

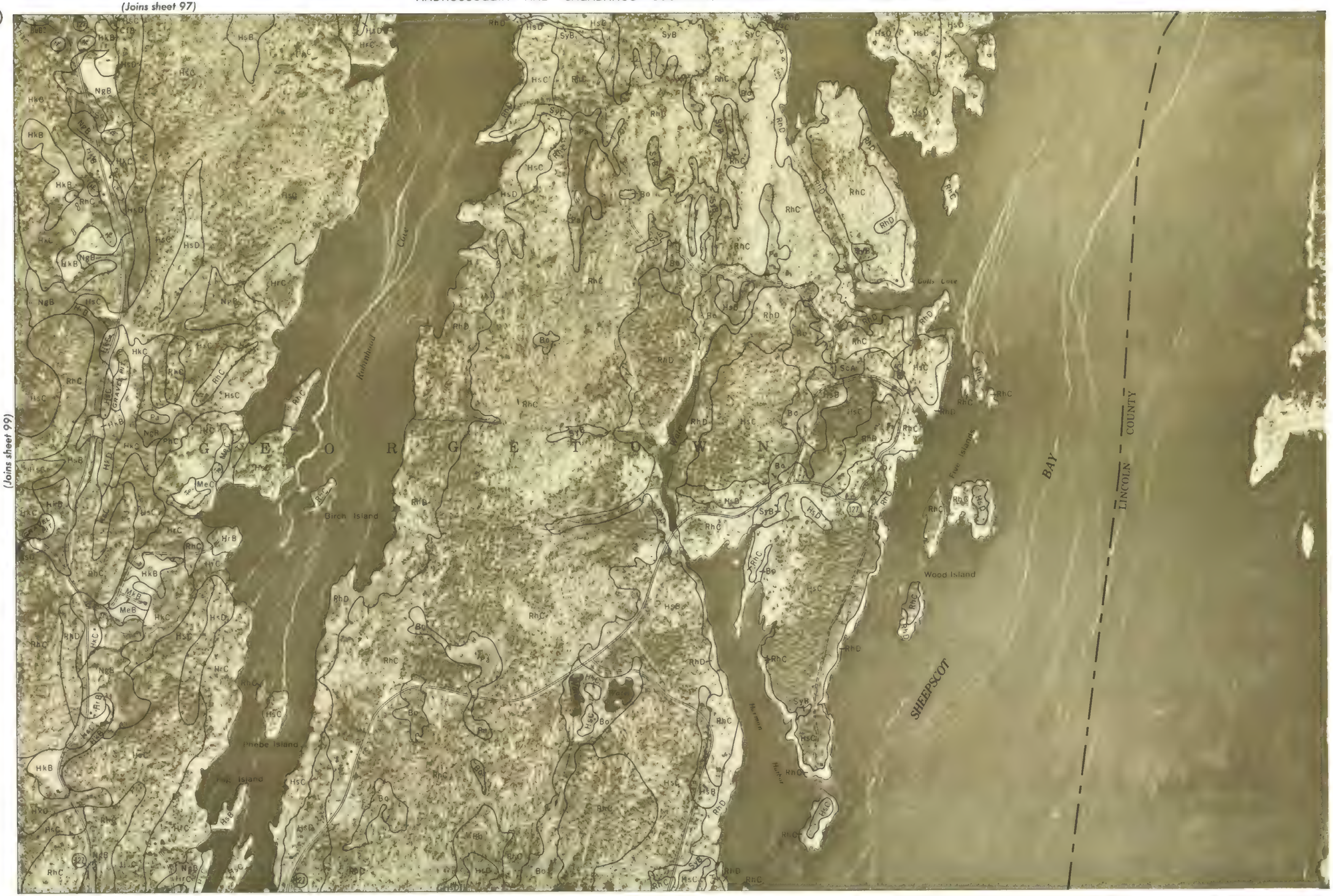
ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 99

(100)

(Joins sheet 97)

N

(Joins sheet 99)



(Joins sheet 103)

0 ½ 1 Mile Scale 1:15 840 0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 100

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 98)

(Joins sheet 102)

(Joins sheet 104)

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 101

(102)

N

(Joins sheet 99)

(Joins sheet 101)

(Joins sheet 103)

(Joins sheet 104) | (Joins sheet 105)

ARROWSIC

PHIPPSBURG

GEORGETOWN

KENNEBEC RIVER

Parker Head

Perkins Island

Lame Island

Marr Island

Dix Island

Wyman Bay

Sprague Pond

Duke Pond

Blatsdell Pond

Tn Pond

GRAVEL PIT

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 102

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 100)

(Joins sheet 102)

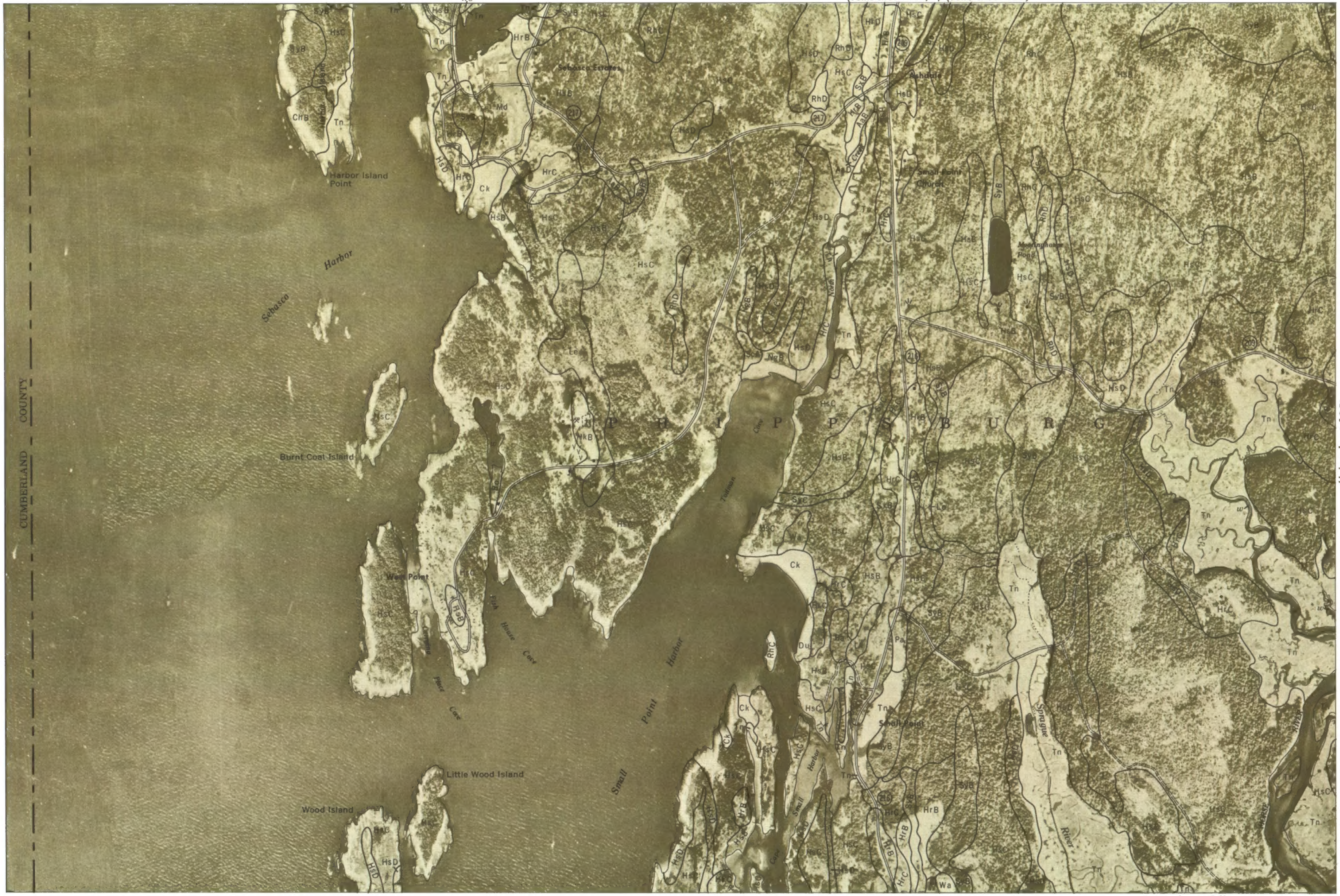
(Joins sheet 105)

0 ½ 1 Mile Scale 1:15 840 0 5000 Feet

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

104

(Joins sheet 101) | (Joins sheet 102)



(Joins sheet 105)

0 ½ 1 Mile Scale 1:15 840 0 5000 Feet

(Joins sheet 106)

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 104

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 102) | (Joins sheet 103)

(Joins sheet 104)

(Joins sheet 107)

0 ½ 1 Mile Scale 1:15 840 0 5000 Feet

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

106

(Joins sheet 104)

N

(Joins sheet 107)

0 ½ 1 Mile Scale 1:15 840 0 5000 Feet

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 106

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

(Joins sheet 105)

(Joins sheet 106)

N

Tn
Ck
Ck
Morse Point
Ck
RhC
RhC
Fox Islands
RhC
P H I P P S B U R G
RhC
RhD
RhD
Heron Island
RhC
O C E A N
RhC
Sequin Ledges
RhC
RhC
Ellingwood Rock
G E O R G E T O W N
RhD
Sequin Island
RhC
Light
RhC
RhC
RhD
A T L A N T I C

0 ½ 1 Mile

Scale 1:15 840

0 5000 Feet

This map is one of a set compiled in 1967 as part of a soil survey by the Soil Conservation Service, United States Department of Agriculture, and the University of Maine Agricultural Experiment Station

ANDROSCOGGIN AND SAGADAHOC COUNTIES, MAINE NO. 107